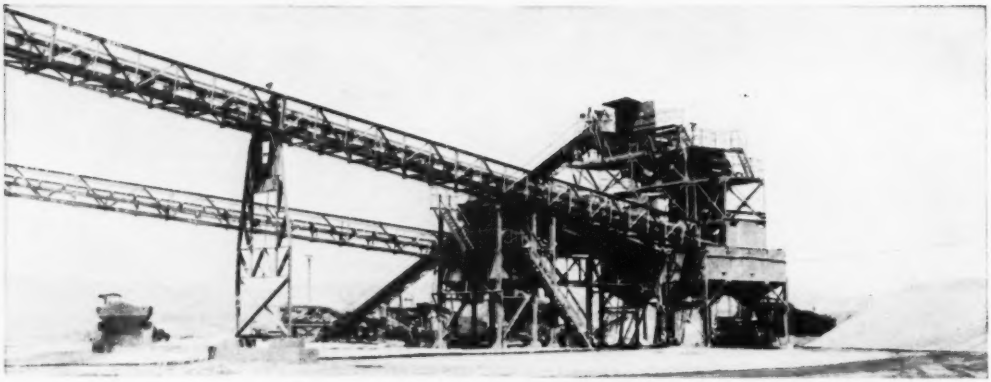
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION



(A) Gravel is processed, and dirt and silt are screened and removed from sand in this washing and classifying plant. From here, the sand and gravel are carried by conveyors to storage piles. Extensive use is made of electric-powered conveyors to provide economical and reliable transportation. G-E motors and control are used throughout the portable arrangement.

ON JOB AFTER JOB

portable plant makes aggregate

... *Electrically*

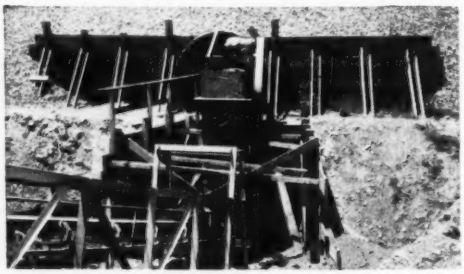
G-E Equipment Powers 245-Tons-per-hour Plant to Process Aggregate Wherever It Is Needed.

This portable aggregate and batch plant has now been operated by the Western Contracting Corp. on four projects. Shown here set up near Newman, Calif., to supply aggregate for the Delta-Mendota irrigation canal, the plant has recently been moved to Yuma, Ariz., to do a similar job for the Welton-Mohawk canal. In 1946 the plant was moved 20 miles to the Newman site, set up, and put in operation in 10 days.

General Electric co-ordinated motors and control are used throughout. They give plant operators accurate control of the process, and have cut outages to a minimum. Motors range from 7½-hp G-E Pacific gear-motors driving conveyor belts to a 150-hp rock crusher motor. A 75-hp vertical motor drives a deepwell pump to supply the plant with water.

Electrified construction equipment can pay off for you, too. With co-ordinated use of G-E motors and control and G-E power distribution systems you will get safer, more flexible, and more efficient operation. *General Electric Company, Schenectady 5, N. Y.*

(B) Oversize rocks are removed by this scalping screen at the beginning of the conveyor system. A G-E 20-hp motor operates the screen. Maximum flow of material to the screen comes from an apron feeder operated by a G-E variable speed motor remotely controlled with a rheostat by the operator at the top of the washing plant.



(C) Gravel is drawn from the storage pile by a conveyor powered by a 10-hp G-E Pacific adjustable-speed gear-motor. This drive permits low adjustable speeds, easily changed by a pilot motor which is controlled from the top of the washing plant.

Ask him Today!

Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.

ELECTRIFIED EQUIPMENT
Speeds Construction—Cuts Costs

GENERAL ELECTRIC

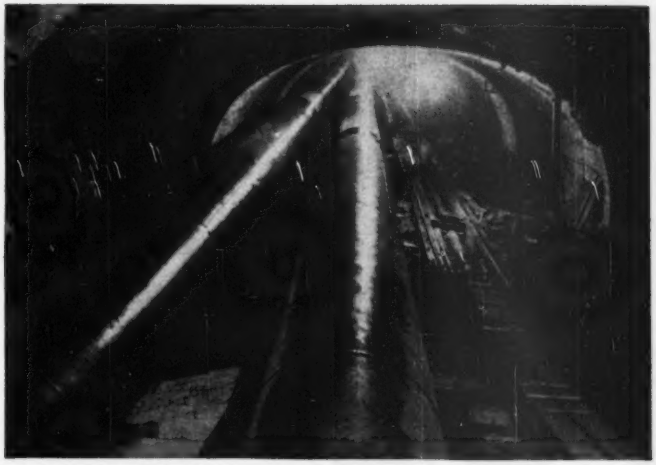
664-17

HOW MUCH DID THEY SAVE WITH *Mayari R?*

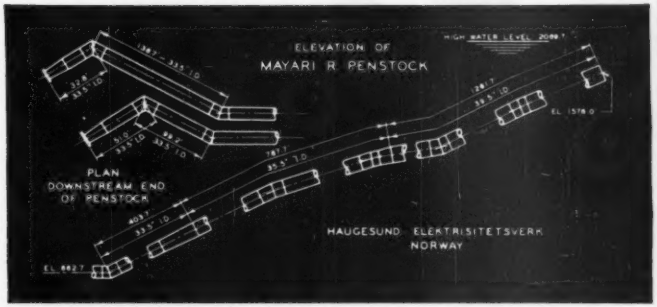
1/3 STEEL TONNAGE

1/3 SHIPPING WEIGHT

1/3 FIELD WELDING



The thickness of the Mayari R plates vary from 5/16-in. at the upper end of these penstocks, to 5/8-in. at the lower end. Inside diameters of the penstocks range from 39 1/2-in. down to 33 1/2-in.



Approximately 500 tons of Mayari R plate was fabricated into penstock sections 30 ft in length for Haugesund Elektrisitetsverk. Each penstock is more than 2600 ft in length. Static head of water is 1407 ft; surge is 352 ft; design stress is 23,300 psi.

These two Mayari R penstocks, now in operation at the Haugesund Elektrisitetsverk in Norway, cost substantially less to buy, ship and install than if they had been fabricated from carbon steel.

First, the higher mechanical properties of Mayari R permitted thinner walls than would have been required with carbon steel. This reduced the tonnage of steel needed by approximately one-third.

Second, this reduction in tonnage of the fabricated steel for the penstocks brought about a worthwhile saving in transportation costs.

Third, the thinner walls and longer sections made possible with Mayari R reduced the number of girth seams, and eliminated one-third of the field welding.

Besides the direct savings there were other advantages in handling. As the Mayari R penstocks weighed less per foot, longer sections could be moved by trucks and cranes.

Bethlehem has fabricated numerous penstocks for domestic as well as foreign hydroelectric jobs, and in all cases where Mayari R was used it has proved to be the most economical material by far.

If you would like more information on the applications and design properties of this low-alloy, high-strength steel, let us send you a copy of Catalog 259.

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BETHLEHEM, PA.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 146 JUNE 14, 1951 No. 24

WALDO G. BOWMAN
Editor

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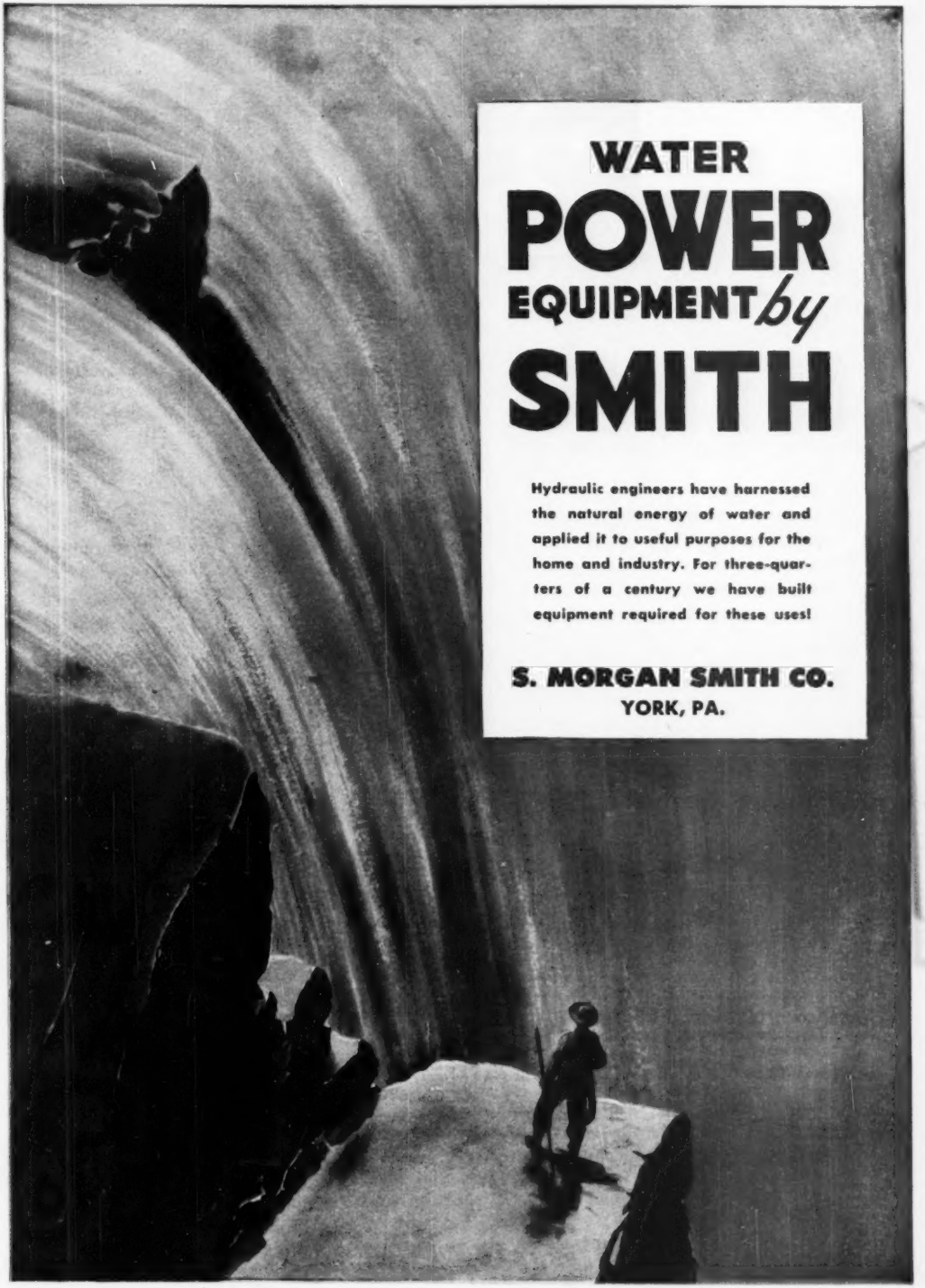
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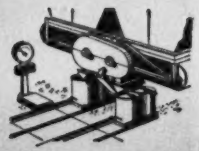
BITUMINOUS MIXING PLANTS



Mix sampling and calibration facilities provided on B-G High Capacity Plants for mixing highest type 3-and-4 aggregate mixes. Convenient, accurate calibration by weight.

ACCURATE MIX CALIBRATION...BY WEIGHT ON A CONTINUOUS FLOW BASIS CONVENIENT FOR OPERATOR AND INSPECTOR!

Barber-Greene Bituminous Mixing Plants provide many control features not offered in any other type of plant. Here are a few of the provisions that help accomplish these advantages:

AGGREGATE GATES, when set to feed the correct amount of aggregate from each bin, may be locked in position.

OVERFLOW SPOUTS are provided on each aggregate bin for balancing aggregate by rejecting any excess of any size in the bins.

AUTOMATIC CUT-OUT stops plant operation in case of deficiency of any aggregate size.

FINES FEEDER for introducing mineral filler in correct proportion to total mix.

GRADATION UNIT SCREEN and bin design permit separation of aggregate into 2, 3 or 4 fractions to meet *any* specifications.

DUST COLLECTOR for use with any plant when it is necessary to conserve desirable fines in aggregate.

BY-PASS GATE for convenient calibration, inspection and sampling. Aggregate in each bin may be individually sampled without interference to plant operation and production.

BY-PASS GATE ahead of pug mill. Composite aggregate sample may be obtained for convenient testing without interfering with operation and production.

ACCURATE, POSITIVE-DISPLACEMENT bitumen metering pump with interlocked drive to aggregate feeders to guarantee unvarying proportion of bitumen to aggregate.

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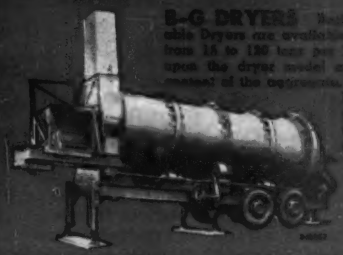
Greene

TO MEET ALL MIX SPECIFICATIONS

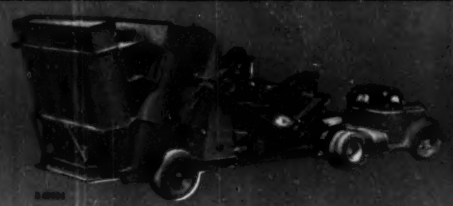
FOR THE CAPACITY YOU NEED...
THE MIXES YOU WANT TO MAKE...

SELECT FROM
4 BASIC B-G UNITS

B-G MIXERS Barber-Greene Portable Mixers are available with capacities from 15 to 225 tons per hour. All feature the same B-G basic advantages of accurate calibration, convenient inspection, twin-shaft pugmill mixing, full weight pug mill sprays, interlocked continuous flow of aggregates and metered bitumen supply, and other exclusive B-G developments.



B-G DRYERS Barber-Greene Portable Dryers are available with capacities from 15 to 150 tons per hour, depending upon the dryer model and the moisture content of the aggregates. Each B-G Dryer has a higher capacity for its size than any other comparable unit.



B-G DUST COLLECTORS Barber-Greene Portable Dust Collectors are available in sizes to meet every requirement for dust control and plant output. Screw conveyor returns fines to aggregate flow.

B-G GRADATION CONTROL UNITS Barber-Greene Portable Gradation Control Units for producing 2, 3 and 4 aggregate mixes, are available for B-G Plants with capacities from 30 to 150 tons per hour. All feature easy calibration and the many other B-G control provisions.

B-G BITUMINOUS PLANT ACCESSORIES

- 1, 2 or 3-bin hoppers
- Reciprocating feeders
- Feeder housing or charging hopper
- Fines feeder with screw conveyor
- Charging and discharging belt conveyors
- Cold elevators
- Bucket Loaders for Travel Plant service

send for authoritative B-G information

Complete files of performance data and explanatory literature on the size and type of Barber-Greene Mixing Plant which interests you are available at your request. As a preliminary to thorough discussion of your needs with Barber-Greene experts, send for this information. When writing, specify type of mixes, plant output, etc.

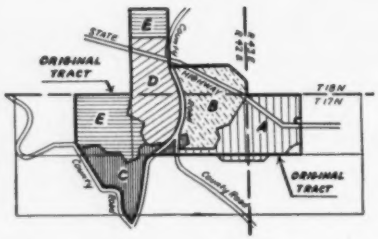
. . OR WRITE BARBER-GREENE COMPANY, AURORA, ILLINOIS, U. S. A.

The Surveyor's Notebook

Reporting on Unusual Surveying Problems and Their Solutions

Notekeeper: W. & L. E. Gurley, America's Oldest Engineering Instrument Maker

How to Please the Ladies



"Surveying country subdivided into townships, ranges and sections seems, on first thought, to offer few problems," writes F. W. Welch of Pullman, Wash. "But this rectangular system, ideal for prairie states, does not lend itself to the rolling hills of 'the Inland Empire'—the wheat and pea belts of eastern Washington State."

"Here, to approximate contour farming, farmers have traded land back and forth, eliminating steep slopes and hard pulls. As a rule, no records are kept, causing problems when old-timers pass on. Heirs usually specify that a tract be divided to 'farm right'—meaning lines must run up valleys, over saddles between hills, and provide a spring and building site for each.

"Recently I had to divide 1,000 acres among five girls in this manner. The land lay in four townships, two ranges and six sections; was cut by a state highway and four county roads. The highway and one road had been relocated; and there were two unrecorded property exchanges for convenience in farming.

"I tackled the job with a Gurley Solar Transit (the new Land Office type). Distances were measured by slope chaining with 300-ft. tape and Abney level, and reduced to horizontal by use of a versine table. Directions were read by true azimuths, using the backsight method, with solar checks every three or four setups.

"We discovered that original surveys were made with a solar out of adjustment. While Government notes read, 'Thence I run due north,' the line was actually N. 3°50'E. A mile, measured by steel tape, never agreed with one measured way back in 1878 with a worn-out Gunter's chain.

"Outer boundaries were run, Lats and Deps and D.M.D.'s computed, and area plotted. Trial division lines were then run and acres computed. *Result:* Each girl received 200 acres ± maximum of ½ acre... *Everybody satisfied."*

Pleasing the Surveyor

"A lot of the credit goes to the Gurley Transit," says Fred Welch, Asst. Prof., Civil Engineering (Ret.), State College of Washington. "My Gurley, purchased four years ago, is still in perfect adjustment."

You, too, will find the Gurley Transit an accurate aid. Bulletin 50 gives all details.

We would like to publish one of your field experiences on this page. Send us your idea—we'll contact you later for details.

W. & L. E. GURLEY, UNION PLAZA, TROY, N. Y.

Surveying and Engineering Instruments, Hydraulic Engineering Instruments, Standard Precision Weights and Measures, Paper and Textile Testing Instruments, Reticle Making Facilities, Aeronautical Navigating Instruments, Meteorological Instruments.

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Since 1845

Heavy capacity rock dipper on Thor-Loader 177, on pipeline job at Needles, California. Contractor: Rachel, Price & Canyon. Note how long projected lip cradles the rocks. Below: long curved back eliminates heeling in every digging position.

Widths to Fit Any Job

...in sizes to Suit Your Machines

that's ESCO FASTBACK the non-heeling hoe dipper

With an *ESCO* FASTBACK mounted on your dipper sticks, you have an unbeatable combination for producing low cost yardage with your present machines. You can

Make wide cuts with small machines.

Get full capacities from large machines on narrow cuts.

Dig a deeper trench (as much as two feet deeper with some machines).

ESCO Fastback is made in sizes from 3/8 yard to 2 1/2 yards

—*and in 7 different basic widths.* Six different sets of interchangeable side cutters are available for each of these seven units, and through their use *each basic unit may be further varied to produce 37 combinations of cutting widths.* Side teeth also are furnished on request.

Require Little Maintenance on Tough Jobs

Based upon construction principles proven through the years by *ESCO* dipper and dragline bucket performance, the Fastback hoe dipper is built to take the punishment of hard work.

Cast alloy steel lip with integral cast tooth holders takes the shock and abrasion of digging. Alloy steel side cutters and teeth are properly mounted for efficient digging. Top and bottom corners are reinforced with alloy steel castings. Cast steel stick connections have manganese steel bushings.

For details of sizes and dimensions, see your nearest *ESCO* representative, or fill in and mail the coupon for specification sheet 177.

ESCO Dippers, Hoe Dippers, Dragline and Coal Loading Buckets

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● No need for two sets of forms when the Helco dual duty form will do the job. Dual duty forms have double treads permitting the use of spreader and finishing machines in either position. ¼" steel plate, welded construction. Special sizes to specifications.

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WRITE FOR HELTZEL BULLETIN K-19

HELTZEL

STEEL FORM & IRON CO.

WARREN, OHIO

NEWS BRIEFS

• **More one-way streets**—As of June 4, First and Second Aves., in Manhattan, N. Y. City, have been made one-way thoroughfares, north and south bound, respectively, but the plan is to be for a 3-month experimental period. According to the plan of Traffic Commisssioner Lloyd B. Reid, the new regulation will cover the two avenues between East Houston Street, just north of the Williamsburg Bridge, and East 125th street, which feeds into the Triborough Bridge—about 6 miles.

• **Another Washington memorial**—As a memorial to George Washington, the engineer, District of Columbia engineers have been urged by Maj. Gen. Ulysses S. Grant 3d, to acquire the masonry which remains of locks built for Washington's canal project to bypass the Great Falls of the Potomac before the Revolutionary War, and to make a memorial of it.

• **Lighthouse at the Hub**—Charles River, Mass., is soon to have its first lighthouse. The 10-ft lens from the famous Navesink Light of 9,000,000 candlepower, which was once the country's most powerful maritime light, has been placed on the east wing of the new Museum of Science at Cambridge. The original lighthouse on the New Jersey coast, was recently dismantled by the Coast Guard, and has been loaned to the museum. It was erected in 1828, and in 1841 the compound lens made by the famous French physicist, Augustin Jean Fresnel, was first used there.

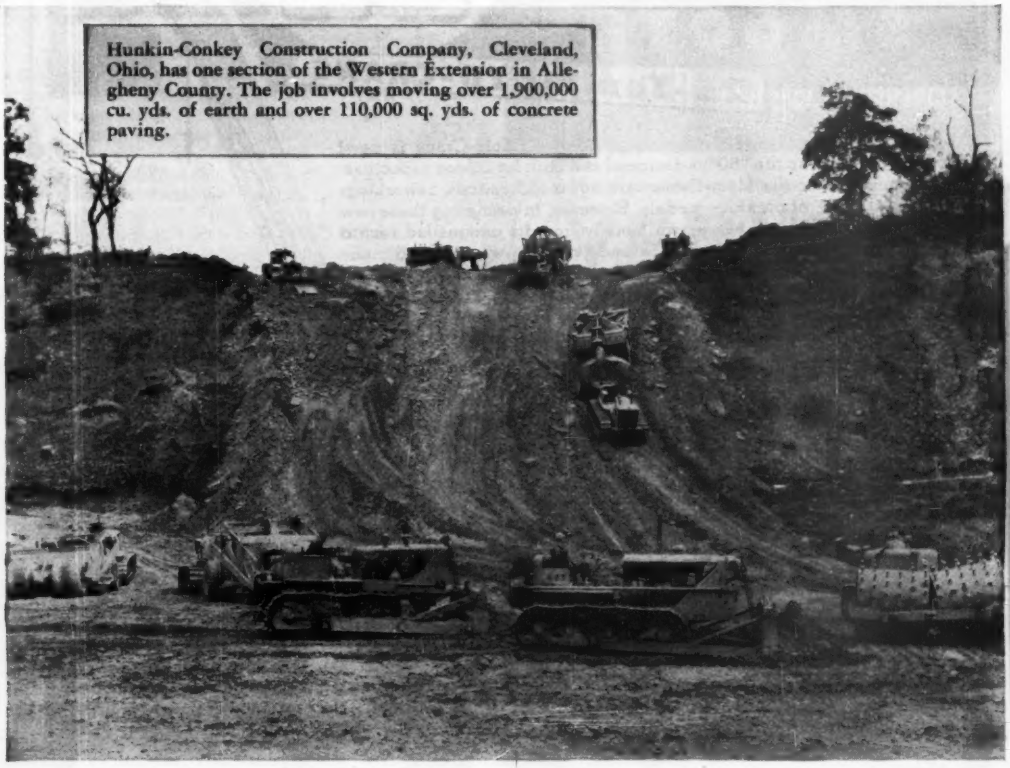
• **"Down by the Old Mill Stream"**—That well-known song, written 40 years ago, referred to the Blanchard River which flows through Findlay, Ohio. Now wastes from six industrial plants have become so thick that the Ohio Health Department calls it one of the state's dirtiest streams, and the department has ordered the city of Findlay and the six firms to comply with its clean-up order by Dec. 31, 1952. Next November voters of Findlay will be asked to approve a bond issue to finance the city's disposal plant and improving its sewers.

• **Long runway**—For defense purposes Uplands Airport, the civilian airfield of Ottawa, Ont., is to be greatly enlarged. Eventually it will have a runway five miles long. This airport is administered by the Department of Transport which is carrying out the

(*Continued on page 11*)

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling on Western Extension of the Pennsylvania Turnpike



Hunkin-Conkey Construction Company, Cleveland, Ohio, has one section of the Western Extension in Allegheny County. The job involves moving over 1,900,000 cu. yds. of earth and over 110,000 sq. yds. of concrete paving.

THE Western Extension of the Pennsylvania Turnpike is another big and important project where the majority of contractors rely on Gulf to help keep equipment delivering top performance.

Leading contractors, like Hunkin-Conkey Construction Company for example, know from experience that Gulf quality lubricants provide an extra margin of protection against mechanical delays. And that Gulf fuels insure full engine power and efficiency.

Then, too, they appreciate the engineering counsel Gulf provides to assure the most suitable lubricants and fuels for every unit and operating condition. And Gulf's prompt delivery service.

Let us discuss with you how Gulf products and services can help you on your next job. They are available to you through more than 1200 conveniently located warehouses. Gulf Oil Corporation · Gulf Refining Company, Gulf Building, Pittsburgh, Pennsylvania.

FIFTY YEARS OF SERVICE
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PETROLEUM AND ITS PRODUCTS

IT'S BIG RUGGED FAST SMOOTH

LORAIN 50 SERIES

25-Ton MOTO-CRANE

Everything about the 25-ton Lorain-50 "Series" Moto-Crane is new! From the ground up the "50" is designed and built for 25-ton capacities. These new rubber-tire Moto-Cranes are not modifications, reworkings and "up-ratings" of previous models. However, in designing these new machines, Thew-Lorain has drawn heavily from its unequalled record of over thirty years of experience and "know-how" acquired since building the first rubber-tire "truck-crane" in 1918. The new Lorain-50 "Series" Moto-Cranes are just what you'd expect the leader to produce—a *bigger, stronger, safer, better* machine. Your Thew-Lorain Distributor can provide full facts!

THE THEW SHOVEL CO., LORAIN, OHIO

25-Ton Crane Boom

- Wider, deeper, stronger
- Quick action pin-connections
- Usable in 100-ft. lengths—130-ft. with extensions
- 6-part direct hoist line reeving with 3-sheave boom head
- Convertible to clam, drag, shovel, hoe, pile driver

Throttle Control

- Smoothest acceleration for raising or lowering loads
- No jerks, jolts or bounces
- A wider range of raising and lowering speeds
- Pin-point precision for spotting loads

25-Ton Turntable

- *Hydraulic Coupling* gives the smoothest operation—no jolts, bounces
- New, wider shoe type swing clutches
- Turntable rollers on anti-friction bearings
- Uniform-stress Center Pin design

25-Ton Carrier

- Built specially for 25-ton crane and 1-yard shovel stresses and impacts
- Box section frames deeper, stronger
- 220 H.P. gas engine
- 10 forward speeds (30 M.P.H.); 2 reverse speeds
- Man-saving, air-assist steering

2 Models

Lorain-50 "Series" Moto-Cranes are offered in these models:

MC-504—25-ton capacity, 102 in. overall width, "6 x 4" only

MC-504W—25-ton capacity, 120 in. overall width to give greater lifting capacities when working "on rubber," "6x6" and "6x4"

THEW LORAIN®

present extension work. There will be special facilities there for the Royal Canadian Air Force, and a special aeronautical research establishment, for the National Research Council and the Defense Research Board.

• **Time for a new gym**—The Y.M.C.A. at Cambridge, Mass., has started a campaign to raise $300,000 to build a gymnasium with facilities for another 1,000 boys. The present gym, built 54 years ago for 600 members, is now used by 2,000.

• **Costly delay**—Caught in a dilemma of its own making, the administration of Cuyahoga County, Ohio, (Cleveland) is casting about for new means of realizing the proposed $395,000 morgue and coroner's office which the public deemed necessary and voted for back in May, 1946. That amount would have been sufficient five years ago but not now. When bids were opened the other day it was found that no contractor dared bid even on a stripped down building to try to meet the architect's estimate of $234,899.

How much truck damage?—A special committee of the New Jersey Society of Professional Engineers has recommended construction of a test road in that state to "find out once and for all" how much highway damage is done by trucks. The committee says "rule of thumb design of highways must be replaced by scientific methods." The committee was formed a year ago at the request of the State Highway Department. It's recommendation is: "It is suggested that a test road be constructed in New Jersey of two types of pavement—one of Portland cement concrete and one of bituminous concrete. These roads should be constructed from sub-base to and including surface to meet the loads allowable under existing New Jersey laws." At present, New Jersey law limits a single-axle load to 22,400 lb and a tandem-axle load to 32,000 lb.

• **Parking meters**—Chicago is following New York in the installation of parking meters. The first of 15,000 of them will be placed in three of its largest neighborhood shopping centers. Milwaukee, Wis., with almost 1,300 meters, has collected $190,531 from them since December, 1949.

• **Unusual moving jobs**—At Kokomo, Ind., a 102-ton transformer was moved at the rate of 100 ft an hour along the Alto Road to the Highland Park substation of the Public Service Co. About 180 wooden rollers, 6 ft. long and 4 in. in dia. were used for the

(Continued on page 12)

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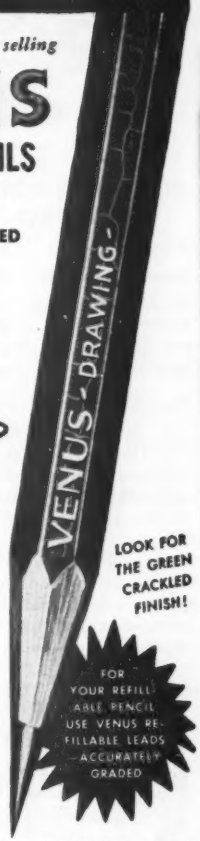

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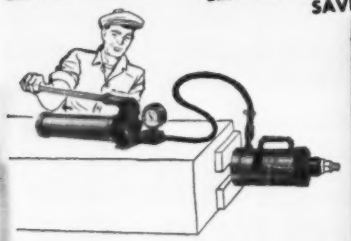

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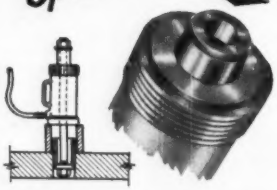

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gigantic moving job. Power was furnished by a 3½-ton truck. At White Plains, N. Y., a 226-year-old frame Colonial house was moved half a mile recently on rubber-tired dollies. It is said that the contractor encountered little difficulty as the heavy frame of the house, held together by big wooden pegs and handmade nails (made before George Washington was born), was very firm.

• **Selling stream sanitation**—Benefits to public health and economic development resulting from stream-pollution abatement are shown by exhibits made by the Northern Kentucky Sanitation Dist. No 1, organized four years ago to build collector sewers and a sewage treatment plant for Covington and 13 nearby communities. The exhibits are in the lobbies of the Covington Bank & Trust Co. and the Chamber of Commerce. They are a part of a citizens promotional campaign being undertaken throughout the valley by the 8-state Ohio River Valley Sanitation Commission.

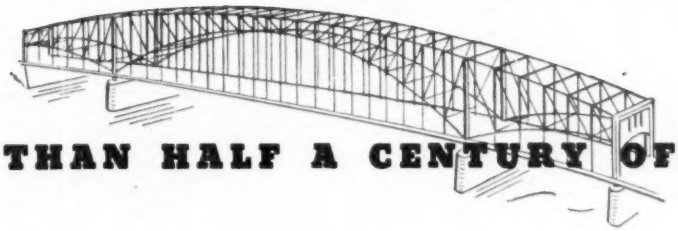
• **Saves 8-sided house**—Carl Carmer, author of many historical books, has bought the famous Octagon house at Irvington-on-Hudson, N. Y., and saved it from destruction. Philip Armour built the home about 1860. It was originally a flat-topped octagonal structure planned by Orson Fowler, the phrenologist, but was "improved" from time to time down through the years. It is said that Fowler built an 80-room house at Fishkill further up the Hudson. It no longer stands, but several other 8-sided houses with flat or slightly-pitched roofs still exist, in the Hudson Valley, notably the library at Red Hook, N. Y.

The Cover

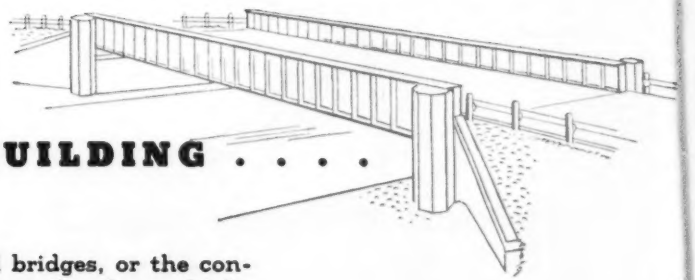
Governor John S. Fine of Pennsylvania (seated) shows obvious satisfaction as he signs legislation authorizing extension of the Pennsylvania Turnpike to join the New Jersey Turnpike. T. J. Evans, chairman of the turnpike commission, witnesses the action.

Governor Fine is signing a measure identical in many respects with one passed by the New Jersey state legislature. Together, the two laws will permit extending the Penn Turnpike from King of Prussia a distance of about 30 miles to the Delaware River, possibly the building of a new bridge over the river, and extending the New Jersey Turnpike from near Bordentown to the river crossing (ENR June 7, p. 24).

FORT PITT BRIDGE . . . MORE



THAN HALF A CENTURY OF EXPERIENCE



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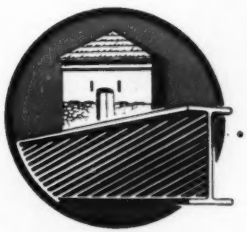

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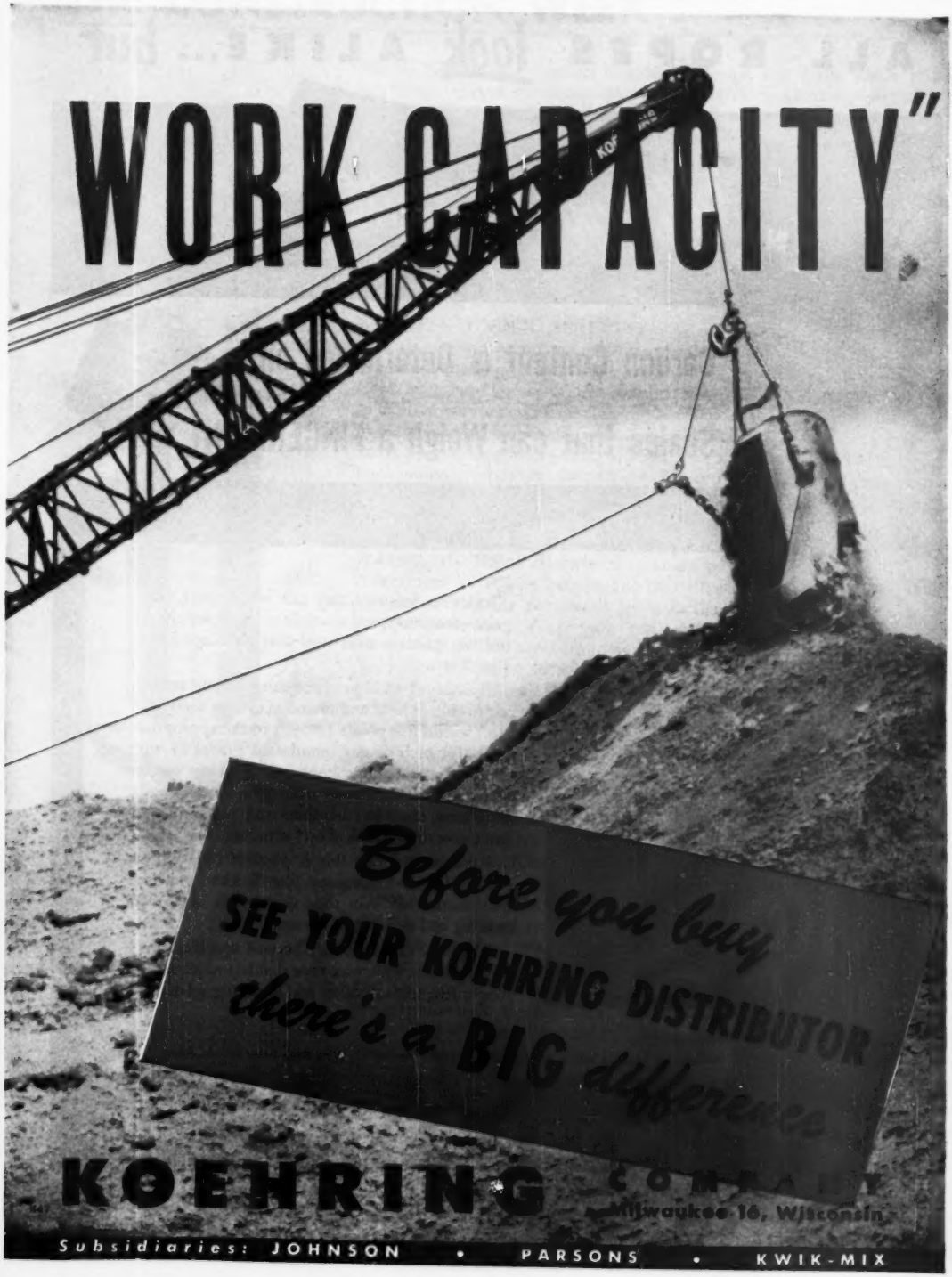
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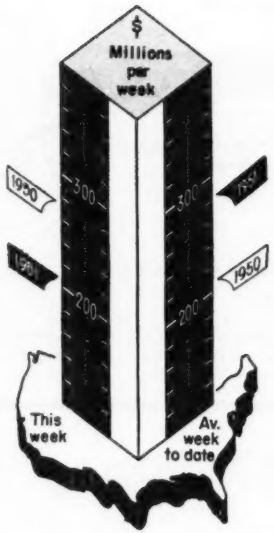
THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 24 wks		% chge
		1951	1950	
Waterworks	$4.4	$104.6	$109.1	−4
Sewerage	6.2	152.2	11.3	+37
Bridges	8.1	136.6	171.4	−22
Highways	19.9	488.9	553.2	−12
Earthwork, Waterways	5.8	260.8	216.3	+21
Buildings:				
Public	34.2	1,042.9	759.8	+37
Housg., pub.	7.8	261.1	106.8	+144
Housg., priv.	30.6	965.5	1,713.2	−44
Commercial	20.6	333.2	407.2	−18
Industrial	31.8	2,247.4	525.5	+328
Unclassified	37.5	765.5	444.0	+72
Total	**$206.9**	**$6,758.8**	**$5,121.3**	**+32**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	June '51	542.68	260.86	113.76
Bldg. Cost	June '51	400.75	216.63	113.92
Volume	May '51	501.8	204	145

(Other business news on p. 80)

SLOW MOTION—Congress is piddling along, not doing much of anything (except for investigations). Observers think it's a stall of sorts—Congress is uncertain of the Administration's judgment of the war danger, is well aware that mounting spending and taxation, plus controls, mean a tightening economic straight-jacket. Meantime, bills that will shape business decisions pile up. Result: A legislative log-jam, worse than in any recent year. It's June, and not a single appropriation has been voted for Fiscal 1952 (which begins July 1). The tax increase hasn't yet reached the House, and there's no decision on controls over wages, prices, rent and credit—which expire at the end of the month.

BUSINESS UNDER SCRUTINY—AGAIN—Rep. Emanuel Celler's House Subcommittee on Monopoly is again taking a dim view of businessmen in mobilization. So there's going to be an investigation. Starting this week, the committee will call on top mobilizers to explain why so many officials of the various agencies are working for nothing—or as per diem consultants—and still drawing salaries from their companies. Celler will also look into the amount of influence industry advisory committees are having on decisions involving prices, materials, amortization and procurement. Objective: To find out whether the little man is being squeezed.

'TAINT SO—Maine citizens complained recently that out-of-state contractors have been getting the bulk of national defense work in the state. Protests registered were particularly bitter about work on the government's air base for super bombers at Limestone, where $52 million are being spent on facilities and services. Gov. Frederick G. Payne stilled the tempest when he revealed that out of 30 contractors at the base, 26 are from Maine. Two architect-engineers designing construction also live in the state.

LAND FOR HOUSES—It won't be lack of land that will cause any slowdown of residential building this year. Early returns in a BLS nationwide survey indicate that home builders have larger land holdings than a year ago. Buying of raw land accounts for the rise; the first batch of reports on builders showed smaller holdings of developed land than last year.

CENTRAL ARIZONA—Senate action last week in approving again the Central Arizona Project Bill (ENR Mar. 2, 1950 p. 25)—slightly modified from last year—means little more than a pat on the back for Arizona Senators, Hayden and McFarland. On the House side, the Interior and Insular Affairs Committee already has turned thumbs down on the measure; it wants settlement of the Colorado River Water dispute before it considers the project.

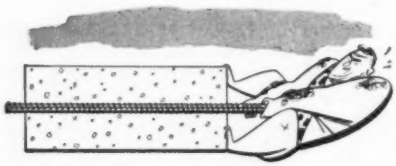
BLACK POWDER EASIER ON FISH?—Santa Barbara, Calif., city council protested to the California Fish and Game Commission against an application by the Union Oil Co. to conduct seismic explorations in coastal waters, on the ground that previous tests were damaging to marine life in the area. It is said by the fish and game commission that Union recently has conducted experiments on the effects of explosives on marine life and found that black powder has an effect much less harmful on fish than the dynamite used earlier.

Advantages offered by Inland HI•BOND since 1943 now officially recognized by American Concrete Institute

At the annual convention of the American Concrete Institute in 1949, Committee 208 on Bond Stress proposed changes in design stresses for concrete reinforcing bars. These proposals were made after Bureau of Standards tests proved that certain "improved" reinforcing bars could live up to higher standards.

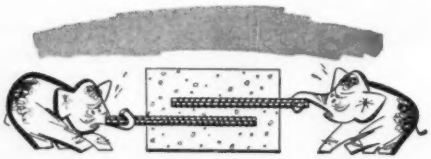
At the 1950 convention, the ACI Building Codes Committee adopted the proposals of Committee 208. And in February 1951, the Institute officially accepted the new building code change.

It is interesting to note that Inland HI-BOND has, for eight years, offered all advantages of higher bonding properties now officially recognized by ACI.



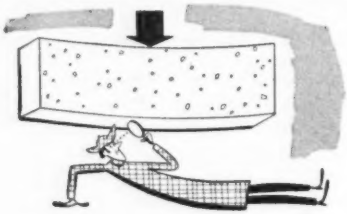
1 Increased bond stresses and greater resistance to slip

See reports on National Bureau of Standards research by Arthur Clark . . . ACI Proceedings, Vol. 43, p. 381; Vol. 44, p. 437; Vol. 46, p. 161; by C. C. Fishburn . . . ACI Proceedings, Vol. 44, p. 289.



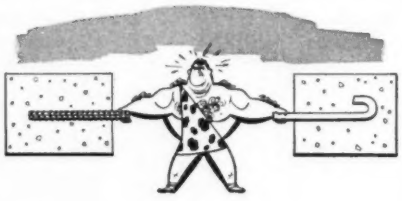
2 Increased efficiency at splices

See reports on National Bureau of Standards research by Ralph W. Kulge and E. C. Tuma . . . ACI Proceedings, Vol. 42, p. 13.



3 Reduced width of tensile cracks

See reports on National Bureau of Standards research by David Watstein and Norman Seese, Jr. . . . ACI Proceedings, Vol. 41, p. 293.



4 Hook anchorages unnecessary in most applications

See reports on National Bureau of Standards research by C. C. Fishburn . . . ACI Proceedings, Vol. 44, p. 289; by F. E. Richart . . . ACI Proceedings, Vol. 45, pp. 97 and 237.

See new ACI Building Code

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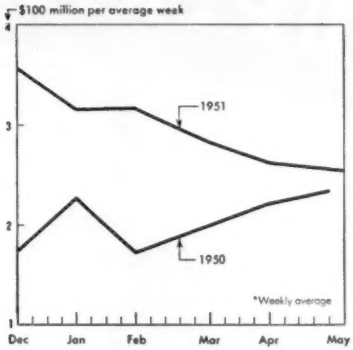
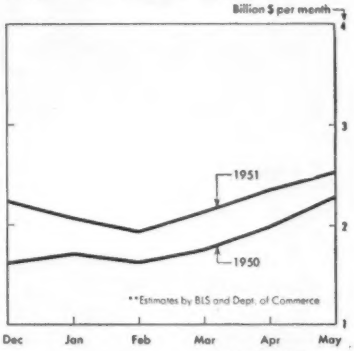
CONSTRUCTION TRENDS

New engineering contracts *
Very high – but falling



Construction expenditures **
High – and still rising



Business News Department

CONSTRUCTION STAYS AHEAD OF 1950

Spending on construction is running well ahead of record 1950. It's holding up in spite of controls, shortages and the drop in housing starts.

Contracts are dropping—ENR contracts for engineering construction have been falling steadily for four months. But few people are worried by the drop. Contracts were so high they had to come down some time. And, though falling, they have not nose-dived; the average weekly value of new contracts still topped last year's level in May.

Besides, total value of new contracts for the year is still a full 35% over 1950 levels—even with the drop. There's enough work left from earlier contracts, along with new ones, to add up to one of the biggest construction years in history. Dollar volume of new construction might even set a new record, if materials don't get much more scarce and controls are not too strict.

• **Down Here, Up There**—Declining volume of new contracts can hurt some contractors. But vast increases in demand for industrial construction and public work more than balance overall drops in housing, commercial building and highways. For the first 22 weeks of 1951, industrial contracts are up 328%, public contracts 36%.

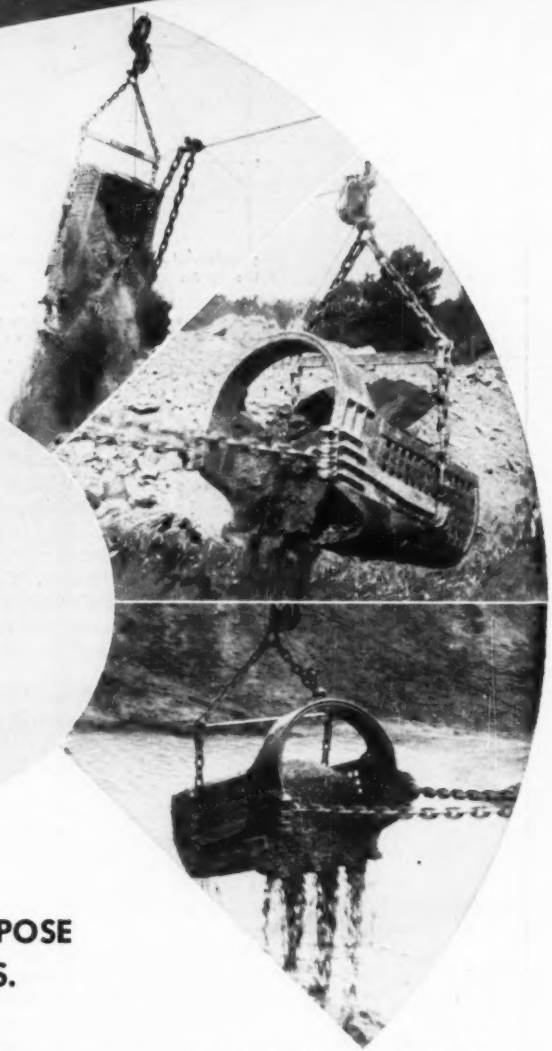
There's plenty of work to be done, even in fields where contracts are down. Take housing: contracts are off 29% for the first five months. But 346,700 housing units were started in the first four months of 1951. That's well below last year's four-month total of 412,300—but it's not exactly a depression. Starts may still go over 900,000, making 1951 the fourth or fifth highest home-building year on record.

• **Spending High**—So far, spending on construction has been away up. The Bureau of Labor Statistics and Department of Commerce estimate work put in place through May of this year at about 17.6% over the first five months of 1950.

A lot of this jump is caused by inflation—construction costs are up 10% to 12% since early last year. But, after allowing for price rises, physical volume of work is still well above the levels of early 1950. Employment in contract construction shows the big volume. Employment was 2,451,000 in May. Since the war, only a few peak months of 1950 have been higher.

• **Cut due—No one expects activity to stay ahead of last year very much longer—controls and shortages will cut further into construction in the next six months. But, total spending may equal and possibly pass last year's $27.7 billion.**

built-in SUPERIORITY



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MANSFIELD — LOUISIANA

Toward professional unity

FOUR PLANS for obtaining greater unity within the engineering profession on questions of national importance are summarized elsewhere in this issue. Also included is comment by students of the unity subject concerning the factors that must be considered if any move toward greater unity is to succeed.

No one of these four plans is perfect, and no plan that anyone could evolve would be perfect, primarily because success rests not on the plan but on faith and confidence in the men who administer it.

For evidence of this, one needs only to examine the two organizations for professional unity that now are operating side by side—the Engineers' Joint Council and the National Society of Professional Engineers. Either one could do an adequate job with only minor changes in its set-up to make it more widely representative. Neither one can do a completely satisfactory job because some elements of the profession lack confidence in the breadth of vision of the men directing its activities. It is simply that collectively they are not regarded as sufficiently representative of all the viewpoints that different groups in the profession believe are necessary.

Consequently, if one of the four plans now under consideration is to be successful it must be one that has broader representation at the top than either EJC or NSPE can now display. Only thus can widespread confidence and wholehearted support be assured.

By-products of military service

BURIED IN BACK PAGES of the "Quadrangle", the journal of the College of Engineering at New York University, is comment by Dean Thorndike Saville that should be passed on to every young man who fears that military service may upset his planned scholastic training.

Dean Saville had just returned from a civilian orientation conference put on by the Department of Defense where the might and effectiveness of the men and machines of the Army, Navy and Air Force had been demonstrated. He had this to say: "If any one thing impressed me most on this trip, it was the fine character of the many thousands of young officers and men. We saw and talked to many of them. Full of spirit, enthusiasm, pride and courage, backed up by the highest calibre of engineering equipment and operations, supported by good housing, good food, and good hospitals, the morale everywhere appeared excellent. Our military establishment seems to be clicking, and no young man should feel that he is 'losing' opportunity by spending two years in the military service. He will gain in associations and in outlook; learning obedience, teamwork, and leadership; and very likely much of professional value if he is or intends to be an engineer."

Engineers who served in World War I or World War II will agree with Dean Saville's conclusions. Like the young men of today, they faced military service with misgivings. But all misgivings disappeared soon after they got into uniform. The teamwork, the need for quick, decisive action, the opportunities for developing leadership, the necessity for making the most of what equipment is immediately at hand, and the many factors tending to develop a strong esprit de corps, all were soon found to be assets of great value to any young man—especially the young engineer.

Pavement preservation

HIGH AND INCREASING COSTS of highway maintenance place a premium on good repair work. True at any time, this fact takes on added importance now when defense hauling intensifies wear and when new construction may have to taper off temporarily.

Worn concrete pavements present one of the principal problems because of the general lack of success in providing a durable, thin topping of new concrete. The root of the difficulty is recognized in poor bond or, more precisely, in inadequate horizontal shear resistance at the bond line. But most efforts to improve bond have stopped at getting a roughened surface, applying a thin layer of grout and wetting the surface before the topping is applied. That hasn't been enough, as the too-frequent failures show.

It is worth recording, therefore, that Rochester, N. Y., has gone beyond the obvious fundamentals to add some new operations to pavement topping techniques that are seemingly paying off in increased bond. The most significant operation is probably the use of a compactor power float to give the final finish prior to conventional brooming. Hand tamping is used immediately after the topping is placed, but it is the extra pressure applied by the mechanical compactor that appears to assure good bond.

H. Walter Hughes of the Rochester department of public works—who described the laboratory and field tests as well as the first large-scale jobs before the last convention of the American Concrete Institute—emphasized another requirement as a dry, harsh mix. He also told how the city had developed a carriage mounting three air drills equipped with star bits to roughen the surface.

Two things are significant about the Rochester work. It suggests that pressure in applying the topping may be the missing link in assuring success. And it demonstrates that mechanical equipment, either existing or capable of development, can be used to give the mass placing methods that modern pavement repairs will require. Pavement preservation as practiced at Rochester is something to be emulated and improved upon.

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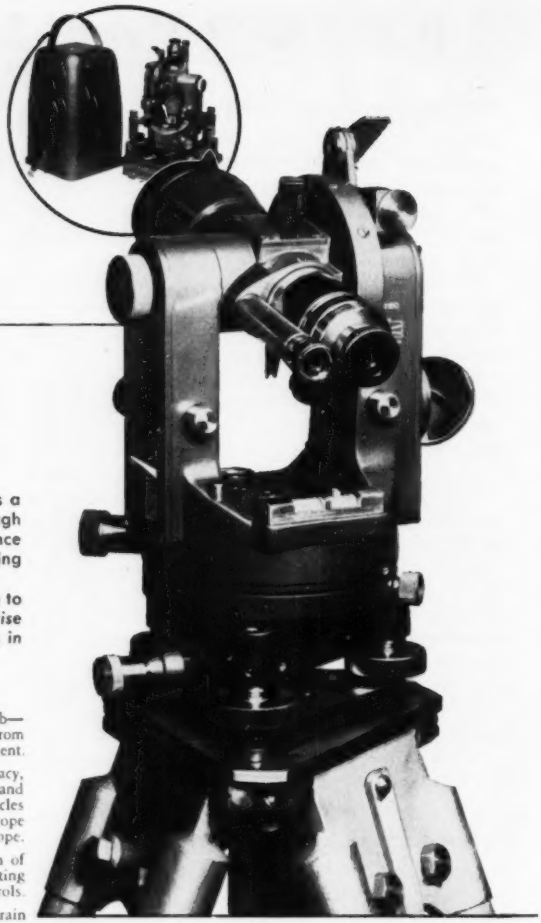

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JUNE 14, 1951 VOL. 146 NO. 24

Controllers polish regulation putting building under CMP

Controlled Materials Plan Regulation 6 due to be issued promptly for quick use—Single form to serve—Power expansion procedure also outlined

Construction projects that contribute directly to defense or to vital civilian needs will soon become active participants in the Controlled Materials Plan.

The National Production Authority this week put the finishing touches on CMP Regulation 6, which tells a builder how to get materials for construction under the plan. CMP takes effect in the third quarter, starting July 1.

Regulation 6 will be issued promptly. Claimant agencies and contractors can begin to make use of it at once. The regulation follows the basic lines originally proposed (ENR May 31, p. 23). Under it, the prime contractors—owners or builders—on essential projects will soon be filling out their materials requirements for the next four quarters, on form CMP-4C.

• **One form does trick**—This form is really a dual-purpose document. NPA has carried out its first intention of making CMP-4C serve both as an application for permission to start construction of a new project under NPA Order M-4 and also as a form for listing materials requirements. Contractors on going projects will use the form to apply for allotment of controlled materials and for a priority rating to apply to other materials and equipment. Applicants for construction permits will likewise fill out the materials requirements and ask for CMP allotments if they so desire.

Filling out of CMP-4C is the first step in operation of CMP for construction. The form will be returned to the claimant agency or NPA industry division responsible for the particular project. This agency will determine whether the project should receive an allotment of controlled materials.

That is the theory of the operation. Actually, projects awarded by the defense agencies or previously approved for rapid tax write-off—as contributing to defense production—are almost automatically assured of materials allotments. If their quarterly requirements have not already been determined, they will get their allotments as soon as the requirements are passed upon.

• **Materials allocation**—Claimant agencies in charge of various construction fields are this week getting their allocations of controlled materials for the third quarter.

A number of the agencies have already received this allocation: In steel, for example, the Bureau of Public Roads has 300,000 tons of highways, and the Federal Security Agency has 100,000 tons for schools and 75,000 tons for civilian hospitals. These allocations don't come up to estimated requirements, but they are as close to the estimates as the requirements committee could come in the apportioning of available materials for the first quarter of CMP.

A claimant agency can make project allotments up to, but not exceeding, its quarterly allocation of controlled materials—steel, copper and aluminum. On the basis of War II experience, the first quarter under CMP is largely a shake-down period, for fact-gathering and testing. That will be particularly true for construction, which is coming under CMP nearly six weeks later than the manufacturers. But after CMP gets fully under way, in the fourth quarter of this year, allotments to essential projects will be effective in assuring deliveries to essential projects.

Even in the third quarter, contractors who get CMP-authorized construction schedules and allotments for their projects will gain some advantages. Use of a CMP allotment number on orders for controlled materials—and of a priority rating with the allotment number on orders for other materials and products—will obtain preferential treatment from suppliers. The preference will be most useful on deliveries to be made toward the end of the quarter.

• **For utilities**—As the general regulation was readied, procedure for electric utility projects under CMP was outlined last week in a letter to the power companies.

Administrator Clifford B. McManus of the Defense Electric Power Administration explained that it will take some time to put CMP into operation and convert DO orders to CMP rated orders—with occasional delays in

(*Continued on page 24*)

Army civil functions face cut in budget

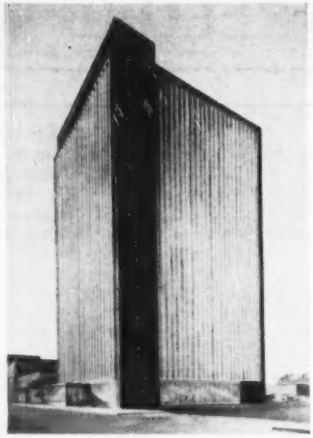
An economy-minded House Appropriations Committee last week recommended a 20% cut in the $642-million budget request for Army civil functions in fiscal 1952. Reporting an appropriation bill for the year that starts July 1, the committee trimmed large sums off the budget estimates for the Corps of Engineers.

General flood control, for example, was reduced from $328 million to $268 million, and rivers and harbors from $221 million to $163 million. These recommendations would cut rivers and harbors by $24 million and flood control by $10 million below the amounts appropriated for the current fiscal year ending this month.

The bill now goes before the House, where efforts will be made on the floor to restore some of the money. It also must pass through the Senate Appropriations Committee and the Senate itself.

• **For economy's sake**—In its report, the House committee refused money for any new projects and denied funds for planning and surveys. Further, the committee ordered the Army Engineers to make an "economic re-evaluation" of all projects now in the planning stage, "with a view to effecting greater economies and a better-integrated national program."

Proposed river and harbor projects that the committee knocked out include the Dalles on the Columbia ($18 million requested), Ice Harbor Lock and Dam on the Snake River in Washington ($4 million), Old Hickory Lock and Dam on the Cumberland in Tennessee ($8 million), and the Cheatham Lock and Dam in Tennessee ($3 million). In addition, the committee denied $5 million to begin construction of Gavins Point Reservoir on the Missouri River, Nebraska and South Dakota.



GLASS-AND-ALUMINUM MODERN—Architect's rendering of an L-shaped, 16-story office building designed for the Texas Company in New Orleans, estimated to cost $14 million. It is said to be the first New Orleans building to have an all-welded frame with no interior columns. Front and side exteriors feature vertical aluminum fins, extending 17 in. from the wall surface, to shade glass areas so that offices have a maximum of light and little glare. Building is to be supported by 240 cast-in-place reinforced concrete pilings, each 90 ft long. Claude E. Hooton, New Orleans and Houston, is architect; Haase Construction Co., Inc., New Orleans, is general contractor.

Mayors ask $600 million for civil defense program

President Truman last week was presented a memorandum by the U. S. Conference of Mayors requesting $600 million from the federal government for civil defense during fiscal 1952. Almost half of this amount—$275 million—would be spent for bomb shelters. The remainder would be spent for fire and rescue equipment (including auxiliary supplies), stockpiling of medical supplies and blood and for training and research.

The mayors point out that since the Civil Defense Act was passed last January Congress has given very little aid. They say, "If Congress should fail to appropriate the amount of funds required to do the job, then our cities can come to but one conclusion: that we should not take this program too seriously."

It is emphasized that federal funds identified as for organizational equipment and shelters must be matched by the states. The mayors claim that the states, and some cities, are in a position to match recommended amounts.

Controllers polish construction CMP

(*Continued from page 23*)

materials deliveries likely to occur during the transition period. McManus gave this summary of operation under the plan:

"1. 'Controlled Materials' means copper, aluminum and steel in various forms and shapes listed in Schedule I of CMP Reg. 1.

"2. 'B Products' means products listed in the official CMP Class B products list, which is available in NPA field offices. In general, these are stock items not manufactured to specifications for a particular purchaser.

"3. 'A Products' means products which contain controlled materials but are not included in the official Class B products list.

"Under CMP the electric utility program (involving some $7 billion in three years) will be on a project approval basis. Each major plant addition approved by DEPA will be backed up by rating authority. Each electric utility will receive from DEPA allotments of steel, copper and aluminum for each approved major plant addition which will include both the controlled material content of a products and controlled materials as such, required for the project. In addition, each electric utility will receive an authorized rating which may be applied to orders for other materials required in the major plant addition.

"The following example will illustrate how electric utilities will operate under CMP: 30 tons of steel are required to construct a transmission line and substation, of which five tons are for reinforcing bars (which is a controlled materials as such), and 25 tons are for steel towers (which is an A product.) You will receive an allotment of 30 tons of steel from DEPA. You will pass on to the mill five tons of your allotment with your order for reinforcing bars and will apply the CMP allotment number to this order. You will apply a CMP allotment symbol to your order for tower steel and you will pass on with your order to the fabricator an allotment for the remaining 25 tons of steel; the fabricator will in turn pass on to the mill the symbol and allotment of 25 tons of steel."

Gen. Bragdon to retire; Gen. Nold named successor

Maj. Gen. James S. Bragdon, Army Deputy Chief of Engineers, will retire June 30 on his request, after 36 years of service. His successor as No. 2 man in the Corps of Engineers will be Brig. Gen. George J. Nold, present assistant chief of engineers for military construction.

Gen. Nold's title will be Assistant Chief of Engineers. To avoid confusion, the title of deputy chief of engineers is to be eliminated.

During his career, Gen. Bragdon has been district engineer at Providence and division engineer at Atlanta. In the early stages of World War II, he directed a $2-billion construction program of camps, ordnance plants, depots, ports of embarkation and air bases in the Southeast. He also supervised the construction of some 45 airfields in South and Central America, Mexico and the West Indies.

He went to Washington, D. C., in June 1944 as chief of the military construction division. He has been deputy chief of engineers since December 1949.

When Gen. Nold becomes assistant chief of engineers, he will be succeeded by Col. John R. Hardin as assistant chief of engineers for military construction. Hardin at present is division engineer at Chicago.

Under-design blamed in precast concrete failure

Collapse of two outer bays of the Kraft Foods factory at Decatur, Ga., during construction has been attributed to under-design of an exterior column. The charge was made in a report by the Building Code Committee of the Atlanta Chapter of the Georgia Society of Professional Engineers to the State Fire Marshal.

Four workmen were killed and a fifth injured when the column failed on April 21 (ENR May 3, p. 29).

The one-story, 245,000-sq. ft. building is of rigid-frame construction, similar to that used for the Naval Supply Depot, Mechanicsburg, Pa. The same structural designer—A. Amirikian, head designer of the Bureau of Yards and Docks—and the same contractor—Corbetta Construction Co.—collaborated on both jobs. Architectural design and specifications were prepared by H. A. Tonager, Kraft Foods architect, who is registered in the State of Georgia.

The rigid frames consist of precast concrete channels bolted together to form hollow-box sections. Roof slabs also are precast.

The Mechanicsburg plant was redesigned to meet the needs of Kraft Foods, some of the members being lightened because of shorter spans. In the redesign, apparently, a mistake was made.

N. Y.-N. E. sewage groups hear of new claim agency

Water and waste works interests now have their long-sought claimant agency in Washington (ENR May 10, p. 25). It isn't functioning yet and probably won't be ready to do any good for the third quarter; but it's there, a special new section of NPA headed by Harvey Howe from Lock Joint Pipe Co. and staffed by personnel from the water and sewage field.

Announcing this accomplishment to the recent joint meeting of New England and New York Sewage and Industrial Wastes Associations, W. H. Wisely, executive-secretary of the Federation of Sewage and Industrial Wastes Associations, optimistically predicted that by the end of 1952 construction of waste works will have regained its pre-emergency 1950 rate.

Some 270 delegates attended the Springfield, Mass., sessions June 7 and 8. First-day attention focussed on industrial waste problems and their solutions as recounted by W. J. Snow of the Connecticut State Water Commission and K. S. Watson of the General Electric Co. A symposium considered the problems caused by industrial wastes at sewage treatment plants.

Second-day functions included a session on the three R's of the sewage works operator—records, reports and repairs.

Concrete Industry Board for quality improvement

Engineers, architects, material suppliers, inspection firms, contractors and technical societies concerned with concrete construction have set up a Concrete Industry Board in New York City. Purpose of the organization is to improve the quality of reinforced concrete construction in the metropolitan area.

The board is sponsored by the Cement League, a component of the Building Trades Employers Assn., which deals mainly with labor-management problems.

Roger H. Corbetta, president of Corbetta Construction Co., is chairman of the board; John F. Hall, district engineer, Portland Cement Assn., is secretary; and Dugald J. Cameron, Fireproof Products Co., is treasurer. Members of the board of directors of the organization are being appointed by the American Concrete Institute, American Institute of Architects, American Society of Civil Engineers, Concrete Reinforcing Steel Institute, Portland Cement Manufacturers, Ready-mix Concrete Producers, Structural Engineers Society and Testing Laboratories.

Manpower limits development, research

"How many men are available?" is the critical question in planning the nation's research and development program.

So spoke Karl T. Compton, chairman of the corporation, Massachusetts Institute of Technology, to an assemblage of engineers in education, government and industry during last week's dedication of a hydrodynamics laboratory and ship model towing tank at MIT (see next week's Education, Research department for details).

The engineering profession is faced by a serious deficit, he said, and went on to propose possible solutions to the critical situation. Calling exemption from the armed forces not practical, since they need engineers too, Dr. Compton said proper allocation of men to jobs of highest priority is the present solution. He feels the Controlled Materials Plan will help in this by permitting only jobs of highest priority to go forward.

Later, there may be a technical manpower board set up—if the military situation becomes urgent enough to demand it, according to Compton.

• **Missionary job**—It is paramount, he emphasized, that the myth of an oversupply of engineers created by a Bureau of Labor Statistics report in 1949 (ENR Apr. 7, 1949, p. 13) be completely dispelled. Blaming this report in part for the present deficit, he stated that the new crop of engineering graduates is but 32,000 this year, 22,000 in 1952 and 17,000 (or as low as 12,000 depending on whose estimates you read) in 1954. Demand will stay up—estimated at 40,000 per year by 1960.

Public utility status for coal pipelines in Ohio

Gov. Frank J. Lausche of Ohio has signed a bill passed by the state legislature which gives coal-carrying pipelines the status of public utilities. It enables coal pipeline companies to acquire rights-of-way by using the power of eminent domain.

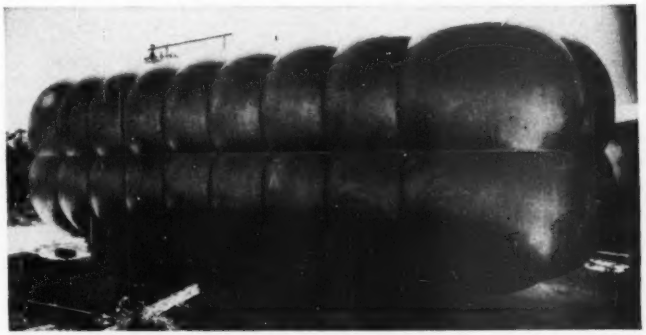
In southeastern Ohio, near Cadiz, the Hanna Coal Co. is building an experimental 12-in line for coal. Reports have it that lines are being considered to connect the southern Ohio coal fields with Youngstown, Cleveland and other large industrial centers.

According to estimates, a 12-in line would be able to transport approxi 2.5 million tons of coal annually—at a saving estimate to be at least one dollar per ton.

Road congress meets in Portugal this fall

The 9th International Road Congress to be held by the Permanent International Association of Road Congresses is to be held in Lisbon, Portugal, Sept. 24-29. Subjects for discussion are: Progress made since the 1938 congress in the use of Portland cement, asphalts and tars in construction of pavements for highway and runways; subgrade testing and soil stabilization; effect of vehicle speeds and types of traffic on highway design; the economic justification for road work; and construction and maintenance of roads in urban areas and in undeveloped regions.

There is to be an exhibition of road materials and equipment in connection with the congress.



PRESSURE VESSEL—Welded joints mark the design of this 30,000-gal Horton Multisphere, built by the Chicago Bridge & Iron Co., Chicago, for the Superior Dade Gas Corp., Fort Lauderdale, Fla. The structure measures 11 ft 6 in. by 38 ft 4 in., is designed for a working pressure of 250 psi and is used to store propane.

TO HARNESS THE MISSOURI—Aerial view of Fort Randall Dam in South Dakota shows 12 huge vertical concrete structures which are intakes for tunnels to carry the water under the dam. Eight will be power tunnels and four provide flood control for this multi-purpose dam which will provide 320,000 kw of power and improve navigation. The earth-fill dam behind the intakes is 160 ft high and eventually will extend 10,000 ft across the valley. Spring 1954 is target date for completion of this Corps of Engineers project.

Fight against water pollution continues

States across the country are carrying on the fight against pollution of water supplies including streams, lakes and sub-surface sources. In some instances, where earlier efforts have failed to bring the desired results (or at least a start toward improvement), more drastic action is being planned.

• **Ohio battles**—In this respect, Ohio officials are planning to move against 20 cities which have failed to do anything about abating pollution. Dr. John D. Porterfield, state health director, is requesting direct action by the state's attorney general under provisions of the Regan Act, passed in 1949, which makes it unlawful for any city or industry "to maintain or permit to be maintained sewers that discharge wastes into streams."

Stronger enforcement measures were proposed in the Deddens Bill put before the 99th General Assembly, recently ended, which would have created a five-member Water Pollution Control Board with authority to move against cities, industries and individuals who discharge raw sewage and waste into Ohio waters. But the bill failed to pass the Legislature.

Through a survey made by the state's department of natural resources, it was found that most Ohio beaches on Lake Erie are too polluted for safe bathing.

The report says the lake is contaminated badly with sewage pollution—except at its eastern and western ends—and that all streams entering the lake are contaminated heavily.

Severe pollution was found close to shore only; good drinking water is being obtained at 15 lake intakes.

Out of 25 beaches tested last year, 17 showed greater pollution than is tolerated by public health standards. Most of these were in the Cleveland area and the survey showed that much of the pollution comes from industrial wastes and storm sewers.

• **Levy upheld**—Ohio's Mahoning Valley Sanitary District has won a district court ruling which gives full authority to spend a cash balance for water improvements and collect the annual $524,729 levy for 1950. Altogether, MVSD will have about $1,753,000 to improve district water facilities.

A taxpayer's suit was filed on the contention that the district's large, unexpended balance and the annual levy upon taxpayers should both be earmarked for bond-retirement purposes. The Seventh District Court of Appeals at Youngstown handed down a ruling which was in favor of the sanitary district.

• **Across the line**—In neighboring Pennsylvania, the state sanitary water board has ordered 16 western Pennsylvania coal mine operators to end the discharge of acid mine waters into streams. The board is campaigning to clean up stream pollution to comply with the state's agreement with the Ohio River Valley Water Sanitation Commission. The board also cited 11 operators to the state justice department for legal action.

Sweeping public health legislation to decentralize Pennsylvania's health services into all-inclusive county boards of health has been introduced in the state general assembly, with the backing of Gov. John S. Fine and Health Secretary Russell E. Teague.

Proposed legislation would permit single-county or joint-county health departments to handle all public health functions under broad state supervision, but with responsibility centered in the county health director. A sanitary engineer would be included in each county or joint department and no such department would serve fewer than 50,000 persons.

• **Water research**—The state water pollution control board of California has approved a contract with the California Institute of Technology for an investigation and critical evaluation of water quality standards.

The board also approved an agreement with the University of Southern California for a field investigation and research on pollution of ground waters through leaching from dumps.

Another contract provides a field investigation and research by the University of California on the travel of pollution with ground water.

• **Needs in Oregon**—The state of Oregon will need about 100 new or improved sewage treatment plants during the next 10 years, at an estimated total cost of $27.5 million—according to Harold F. Wendel, Chairman of the State Sanitary Authority. The plants would serve an additional ultimate population of 483,000.

Wendel revealed during his long-range estimating that during the past two years the state's cities have built 22 new sewage treatment plants with a capacity to serve a 665,000 population.

Water, sewage facilities govern Calif. home permits

California's division of real estate has tightened the qualifications for obtaining permits for home subdivision development projects.

Permits will not be issued on any new tract until satisfactory evidence is presented that water, sewage, and drainage facilities either are available or going to be made available.

The purpose of the new policy is to prevent the sale of lots under representation that sewage can be disposed of satisfactorily by subsurface drainage systems when, as a matter of fact, permits for construction or use of septic tanks cannot be obtained from local health authorities.

A similar procedure is being followed in connection with serious drainage situations. In respect to water, a satisfactory showing must be made that water is available and in sufficient quantity.

The division reports these policies and their enforcement appear to have the approval of the subdivision development industry and local officials.

States make contract termination rules

Iowa and North Dakota recently have joined a group of other states in placing emergency termination clauses into construction contracts for highway work.

Because of increasing restrictions placed on construction materials and equipment by the federal government, due to the national mobilization effort, it has become apparent to contractors and highway officials that specific protection should be provided against delays and stoppages beyond a contractor's control.

Kansas and Pennsylvania have issued specifications supplemental to their provisions and reservations for contract termination procedures followed during World War II.

• **All public works**—California, Iowa, New York and Utah passed special laws to create termination policies. In these four states, all public works contracts awarded by the state are covered.

This condition may prevail for special laws passed in some of the other states, but in most cases if circumstances are such that it is impracticable to proceed with a substantial portion of the job, the state's highway department and the contractor may terminate a contract by written agreement.

Emergency termination provisions follow a fairly uniform pattern, designed to protect contractor and public agency alike. However, there are basic differences. For example, Illinois, Kansas, Missouri, New Hampshire, North Dakota and Pennsylvania specify that the contractor "shall not be paid any amount for loss of anticipated gain or profit on any work not performed or completed."

• **How paid**—Payment for work done, generally, is to be made in full for the portion completed at contract unit prices or agreed prices where unit prices have not been used in the contract.

Payment for work partially completed varies with individual states. Ohio agrees to pay the cost of materials incorporated in the work, equipment and labor—plus 15% for profit and overhead. Unused materials purchased by a contractor for Ohio and Michigan will be purchased by the states at actual cost, plus 15% for profit and overhead, upon certification by state engineers that the materials are acceptable and properly stored and protected. New Hampshire will pay cost of materials plus 10%.

In most of the other states with termination clauses, unused materials purchased by a contractor are bought by the state at cost price to the contractor, as established by voices.

• **Special assistance**—Provisions for emergency contract termination are written so that an equitable settlement can be made for all concerned. Where a contractor has rented equipment, the states generally pay for the rental time on the job. Where construction is only 25% complete, or less, the contractor usually will be paid for expenses incurred in moving equipment, getting the job started and the erection of temporary buildings.

Acceptance of a state's remittance issued for payment of the final certificate in termination agreements serves to conclude the contract. But termination of a contract in such fashion does not relieve the contractor or his surety of responsibility of replacing defective work, as required by his contract.

The Associated General Contractors of America and its local chapters, have taken the lead in getting these termination procedures set up for state highway work.

So far, California, Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, New Hampshire, New York, North Dakota, Ohio, Oklahoma, Pennsylvania and Utah have adopted termination policies for highway contracts.

Texas Highway Department is preparing an emergency clause.

Ohio increases truck fees; Mo. opposition blocks bill

Highway trucks registered in Ohio will cost their owners an average of 35% more in license fees hereafter, in the first change in such fees since 1932. A bill passed by the state legislature providing fee increases ranging from 22% to 45%, depending upon vehicle weight, is expected to bring in an additional $7.5 million annually.

Distribution of the estimated $7.5 million is to be made: $500,000 to townships, distributed in proportion to the number of miles of road in each one; 23% to the Ohio State Highway Department; 25% to cities; 47% to counties for road maintenance; and 5% to counties for highway items.

Opposition members in the Missouri House of Representatives blocked several attempts to bring up a bill which would increase bus and truck fees to produce about $7 million annually—after approval by a special House committee following a detailed study.

Although the state's general assembly is scheduled to go into its long summer recess at the end of this week—and chances for passage of the bill appear remote—Gov. Forrest Smith is expected to exert every effort possible to get the measure passed before adjournment.

HIGHWAY CROSSES TWO RIVERS—Two of the three major river crossings on the New Jersey Turnpike are only two miles apart on the extensive marshlands west of the hills along the Hudson River. In the foreground is the high-level crossing of the Passaic River and beyond is a similar crossing of the Hackensack, each with a record-breaking main girder of 375-ft span. Amann & Whitney and Howard, Needles, Tammen and Bergendoff are engineers on the Passaic and Hackensack bridges, respectively. Steel is being erected by the Bethlehem Steel Co. and the American Bridge Co. Engineering work on this section other than the bridges is by a combination of Edwards Kelcey & Beck; Frederick R. Harris, Inc. and O. J. Porter & Co., with George M. Brewster & Son as contractors. (Air Photo by M. L. Tuttle)

Plans for greater professional unity being studied by engineering societies

ENGINEERING GROUPS all around the country are now studying four proposals that have been put forward in a new attempt to establish greater professional unity. Heretofore, the divergent views and interests of engineers—nurtured by their widely differing activities and positions in the American economic order—have resisted any catalyst that would produce a common viewpoint on broad national questions. But the lodestone of unity has a perennial attraction. This time—with four plans to choose from—it may be found. Wide endorsement of one of the plans would go a long way toward assuring its success. That, at least, is the theory behind the new unity push.

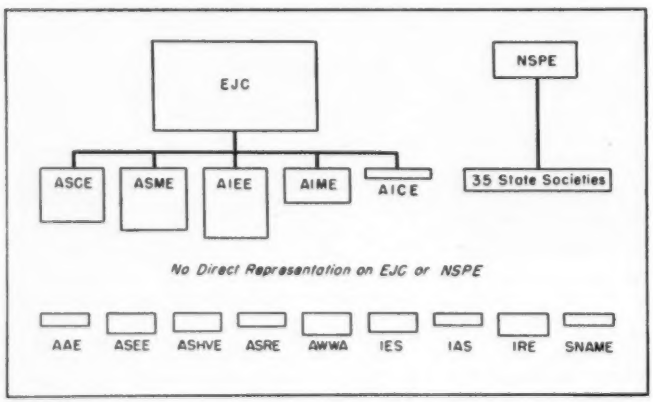
Evolved by an exploratory group of representatives from 15 engineering societies that was called together by the Engineers' Joint Council—itself the outgrowth of an earlier move toward professional unity—the four plans are the product of about two years of study and discussion. Summarized, they stack up like this:

Plan A would expand the Engineers' Joint Council to include a few additional widely representative societies, principally the National Society of Professional Engineers. Members of the constituent societies automatically would become members of the unity organization. Under this plan the National Society of Professional Engineers would no longer take an independent stand on national issues, as it is now free to do.

Plan B would further expand EJC to include top officers or representatives from all the societies represented in the exploratory group. Engineers of high qualifications could also become individual members of this expanded council, with a voice on its governing board.

Plan C would merge EJC and NSPE, with membership open to anyone meeting the basic membership grade for engineering societies adopted recently by the Engineers Council for Professional Development. The governing body would be a board of elected representatives, numbering from 75 to 300, that would select a small board of trustees to act as an executive body.

Plan D contemplates the expansion of NSPE and the elimination of EJC. Under it the Founder Societies would have no direct voice as a unit in the governing body as they now do in EJC. Members of those societies who are not members of a state society of professional engineers would have no representation in the unity organization. Also, only registered professional engineers would be eligible for membership, which would be through membership in one of the state societies.



NUMERICALLY, a large majority of the engineers of this country now are represented on national matters by the Engineers' Joint Council. In this diagram the size of each block indicates the relative size of the society.

• **Present national set-up**—The engineering profession now has two agencies to provide its members with facilities for group action on questions of wide general interest to engineers or on national matters about which engineers believe they should be heard. They are the Engineers Joint Council and the National Society of Professional Engineers. EJC is made up of the president, most recent past-president and the secretaries of the major engineering societies, the Civils, Mechanicals, Miners, Electricals and Chemicals, with a total membership of 112,900.

NSPE is made up of representatives from 35 state societies of professional engineers having a total membership of about 22,000. The actual overlap in representation through these two agencies—due to membership both in a state professional society and in one of the engineering societies—is small, probably not over 10 percent.

• **Much wishful thinking**—There probably is no subject of interest to engineers on which so much wishful thinking has been expended as on this one of an overall organization for engineers. Those who claim to have studied the subject objectively point out that most of this illogical thinking stems from failure to recognize that there actually are few national issues on which extensive agreement can be found among engineers.

This is explained by the fact that unlike the medical profession—to which the engineering profession is most frequently compared in discussions of greater solidarity among engineers—the engineering profession is not made up of individual practitioners in a relatively limited field of activity. Most engineers are employees—elements in the nation's vast production organization—with everyday interests as varied as are the elements of our economic system. Only in basic education and basic approaches to the solutions of engineering problems is there a common ground.

It is not necessary to go beyond the field familiar to civil engineers to discover how deep-seated those differences are. Engineers of the Tennessee Valley Authority and of many municipal, state and federal agencies believe in public development of power; engineers working for the privately owned electric utilities and

most industries are opposed. Engineers in the employ of public agencies do not want private consultants engaged to design important projects such as New York City's parkway system. Frequently they have sought by legislative enactment to bar the employment of outside consultants, only to have engineers of private consulting practice strongly condemn such legislation.

• **Early troubles**—One of the early annual meetings of the NSPE broke up in disorder over the issue of engineering work done by public agencies. And the profession's first hopeful attempt at unified action—American Engineering Council—collapsed because the men chosen to direct its activities failed to recognize that engineers approach national issues from the viewpoint of the industry of which they are a part. What is gospel to one may be heresy to another.

Because of these differences, those who have been making a study of this subject point out that the unity organization, if it is to succeed, must be carefully restricted as to what it is authorized to do. Its management, too, must be drawn from all the main branches of engineering to insure that the thinking of a few powerful groups does not dominate. They state also that the reasoning as to what type of unity organization will best serve engineers at *this stage of their professional progress* must be both objective and realistic.

For example, they point to the need on the part of those who now support EJC to recognize that EJC, as now constituted, is predominately responsive to the thinking of "big business" and is not adequately attuned to the requirements of the "little fellow" in engineering. Similarly, the supporters of NSPE are asked to consider whether it is not made up too largely of men in public service to be truly representative of engineers as a whole. And turning to the state societies that make up NSPE—which have a much more clearly defined field and have large potentialities for effective action than has NSPE—it is pointed out that they are not truly representative of even the registered engineers in their states, to say nothing of all engineers in the state. Only 22,000 of the nation's 160,000 registered engineers have joined one of the 35 state societies in NSPE.

• **Compromise**—Some of those who have been studying the unity question believe that the greatest hope for success lies in a compromise plan that will retain all that has been accomplished by EJC while more is being learned about the possibilities of the organizational set-up of NSPE. In other words, they propose that whatever action is taken at this time be considered a temporary step that will not sacrifice the recognition that EJC has obtained for the profession just because its present set-up may not be ideal. That is why they favor Plan A or B over Plans C or D or over an entirely new all-inclusive engineering society, as many engineers have proposed.

These engineers point out that EJC has built up a high reputation among government officials and federal agencies as spokesman for the engineering profession. The work of its Engineering Manpower Commission has been outstanding—just the type of work that a top engineering organization can and should do.

The same applies to its 1944 report on minimizing the military potential of German industry and its 1946 report on Japanese industry. Both were made at the request of the Departments of State and War, which is indicative of the high respect in which EJC is held in Washington. Consequently, these men state, any move now that would completely eliminate EJC in favor of some other agency that *theoretically* might be more representative of engineers, would be a faltering step in the wrong direction.

• **In the future**—On the other hand, if experience during the next few years demonstrates that strong state societies of professional engineers can be built up, then the compromise represented by Plan A or B can be abandoned for a unity organization more directly representative of those state societies, presumably one built around NSPE.

These same engineers point to another misconception that is producing a lot of confused thinking. This is the belief that the Founder Societies were set up only for scientific purposes and that they are stepping out of their legitimate field when they take action on national or economic matters.

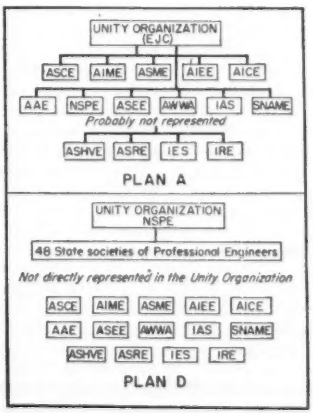
Actually, the oldest of those four engineering societies, the ASCE, was set up for the advancement of science *and the engineering profession*. During the 50 years before there were any professional societies in the engineering field, it carried the ball for its members on national and economic issues. It has continued to function in this way on many matters during the years that the professional groups were small and lacking in both prestige and financial resources.

To cite but one example, the ASCE did more than any other single organization toward perfecting the model registration law, which is the base on which all the state societies of professional engineers were built. Thus, in the view of many engineers, if its members still want the ASCE to speak for them on national or economic issues, either directly or through EJC, their right to do so as free citizens of this country cannot be questioned.

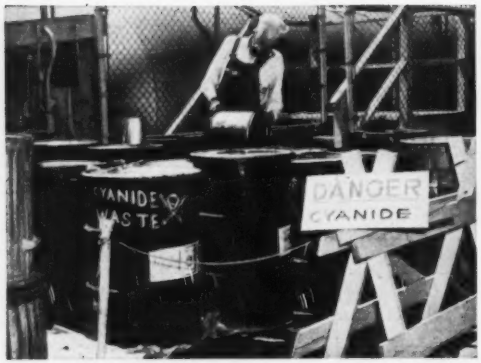
This is why those who have studied the subject for a long time state that any planning for unity which overlooks the fact that engineers are human beings with personal likes and dislikes is bound to fail.

National Societies Represented on the Exploratory Group

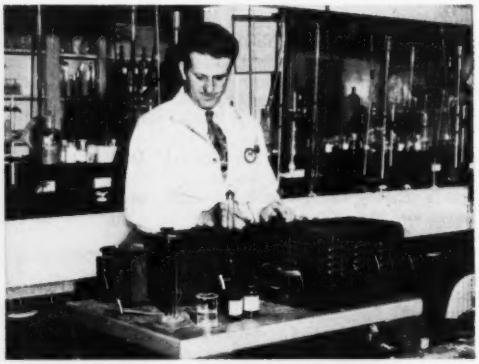
American Association of Engineers (5,200)
American Institute of Chemical Engineers (3,700)
American Institute of Electrical Engineers (34,000)
American Institute of Mining & Metallurgical Engineers (16,100)
American Society for Engineering Education (6,700)
American Society of Civil Engineers (27,800)
American Society of Heating & Ventilating Engineers (6,100)
American Society of Mechanical Engineers (31,300)
American Society of Refrigerating Engineers (5,100)
American Water Works Association (7,300)
Illuminating Engineering Society (6,700)
Institute of Aeronautical Sciences (4,300)
Institute of Radio Engineers (7,400)
National Society of Professional Engineers (21,400)
Society of Naval Architects & Marine Engineers (4,600)



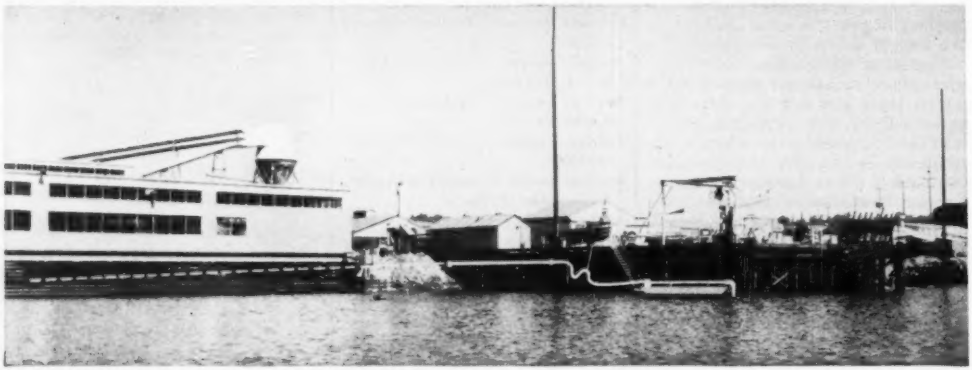
DIAGRAMMATIC presentation of the two extremes in the four plans under study.



DANGEROUS WASTE—Heavy concentrations of waste cyanide and all toxic solids are sealed in barrels, dumped at sea. Less heavy doses of cyanide are made into cyanate by chemical treatment.



CHECK FOR CYANIDE—Careful control is exercised to be sure conversion to cyanate is sufficiently complete. A Beckman spectrophotometer detects cyanide. A check on pH is made.



WATER FOR DILUTION—2 mgd of it—is pumped from Duwamish River to diffusion chamber under the plant. Cyanate and other harmless wastes are diluted before they are discharged.

How to get rid of toxic industrial wastes

BOEING AIRPLANE CO. has one major and a lot of minor problems in waste disposal—and has the answers.

The toughest question is this:

Toxic cyanide (from metalplating and heat-treating processes) must be made into relatively harmless cyanate, then diluted before discharge into the Duwamish River.

Mixture of the deadly cyanides with calcium hypochlorite does the trick—for all but the most concentrated doses. These are sealed, along with solid toxic wastes, in leak-proof, nonbuoyant containers which are dropped in the ocean 100 miles off the continental shelf.

• **How cyanide is treated**—Waste cyanide flows by gravity to two 3,000-gal wooden tanks for treatment. A stainless steel pump of 220-gpm capacity at 60-ft head circulates the liquid within the tanks. Hypochlorite is added for a 30-min agitation period.

Knowing the volume of solution in the tank and its pH, the plant's chemical laboratory adds the required hypochlorite. As the solution mixes in one wooden tank, it collects in the other. Before the treated solution is discharged into the dilution basin, it is checked for cyanide with a spectrophotometer:

Chemical reagents which develop a red color in the presence of cyanide are added to the sample; light of a single wave length—5540 Angstroms (green)—is passed through the solution. If the solution contains any trace of red, the light is absorbed to a degree. An absorption reading is taken on the other side of the solution, and if no green light has been absorbed by red matter, it is known that no cyanide is present.

If no cyanide is present, the solution passes along; if cyanide still is present, more hypochlorite is added.

Treatment tank discharge piping is so arranged that during "pumping out" periods two-thirds of the fluid headed for the dilution basin is returned to the tanks to sustain agitation necessary to keep sludge in suspension.

• **And diluted**—In the dilution basin the cyanate is dispersed in water taken from the river and diluted to less than 1 ppm; pH is kept between 6 and 8. The basin, located beneath the plant, is a 24-in. dia corrugated steel pipe some 30 ft long, asphalt dipped and asbestos bonded. A gooseneck is installed to permit installation of a ¼-in. sampling port above the high tide line.

MILD ACID AND ALKALIES, plus water soluble dyes, are poured into separate cisterns, far from the river, to leach out through porous brick walls laid with vertical joints open.

HARMLESS AND INOFFENSIVE liquid wastes such as machine coolants are tanked and hauled on a flatbed truck to a nearby city dump for disposal.

INFLAMMABLES including waste oil as well as solids are burned in this incinerator which has a chimney equipped with water spray for fly ash control.

River water is pumped into this basin at 1,400 gpm through a 10-in. dia asphalt-coated steel pipe. This pipe connects by 6-in. dia rubber hose to a pumping unit, put on a moored float so that tide variations won't affect suction.

• **Other than cyanides**—Some harmless rinses from the metal treating and plating processes go directly to the dilution basin without treatment. So do floor wash and other miscellaneous waste effluents.

Still others, spent toxic chemicals in liquid form, are neutralized either in the tanks in which they are used or in a portable tank, and dumped into the dilution basin at a rate not to exceed 1 gpm.

More toxic (but not cyanide) wastes are dumped into leaching sumps situated on the plant site far from the river. There are three of these sumps —one for acid, one for alkali, and the other for dyes. These are separated since mixing would mean excess sedimentation and clogging of the sump walls which are porous brick laid with no mortar in the vertical joints.

Dyes and alkalies are taken to the sumps in 1,000-gal skid-mounted cylindrical tanks that may be set either on a trailer or a conventional flat-bed truck. Acids are carried in metal drums on a jitney, poured down a funnel into the sump. All solutions with pH above 12 or below 2 are carried in such closed containers, with the company's chemical laboratory verifying the solution pH.

Machine coolants and some other non-toxic and non-nuisance-forming liquid wastes are disposed of at a nearby municipal dump. Sanitary sewage goes to city sewers. Unreclaimable waste paper and other inflammable scraps are incinerated. Oily wastes, such as turnings from lathes, are left to drain in a salvage yard. Drained oil is collected and burned; the metal is then re-usable.

• **Control**—A man from the plant's laboratory witnesses neutralization of all solutions. Dilution facilities are operated by the maintenance department, which is warned by automatic signal if pumping should stop for any reason.

For check purposes, a constant dribble is taken from the outflow so that the analysis made once daily is sure to be on a representative sample. Limits on wastes discharged from the dilution basin are:

pH, 6.5 to 8.5
Nickel (as chloride), 5 ppm max.
Fluoride, 100 ppm. max.
Cyanide, 0.2 ppm max.

As new processes are adopted, the State Pollution Control Commission is asked to approve waste concentrations involved. Should future volume warrant it, Boeing has a plan to mix its waste alkalies with acids from a nearby iron works to form a neutral solution that can be diluted and discharged.

• **Treatment cost**—Initial installation cost of the chemical treatment and diffusion system was just over $16,000. Operational costs amount to $67.38 per shift, including one attendant, chemicals, power, etc. Chlorine would be cheaper than the hypochlorite used, but it would introduce a gas problem Boeing chose to avoid.

Situated several miles upstream from Puget Sound where salmon fishing is so vital an interest, the Boeing plant is alert to the need for pollution abatement. John A. Richter, process engineer in the plant engineering department, is in charge of the control program. Careful records are kept of all disposal—even to the extent of recording locations where cyanide containers are dropped at sea.

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High-pressure water jets for green cutting and cleaning concrete are examples of . . .

Money-saving methods at Woodruff Dam

Frederick S. Merritt
Associate Editor

The contractor at Jim Woodruff Dam is showing great ingenuity in solving problems encountered during the construction of a navigation lock and fixed-crest spillway. He licked a difficult foundation condition, cut costs on rock excavation and speeded up concreting.

To achieve these objectives, he devised new types of equipment or adapted equipment previously used in other industries: He designed a trailer for hauling concrete buckets from the mixing plant to the job; he used a shale saw for cutting rock instead of line drilling prior to blasting; and working with the Corps of Engineers, he developed high-pressure water jets for green cutting concrete surfaces to get a good bond at construction joints and for cleaning the surfaces prior to placing the next lift. He and his men also achieved a remarkable safety record (ENR Mar. 15, p. 104).

• **Five components of the dam**—Jim Woodruff Dam is being built across the Apalachicola River just below the confluence of the Flint and Chattahoochee Rivers, near Chattahoochee, Fla. Principal purposes of the dam are providing a 9 x 100-ft navigation channel on the lower Flint and Chattahoochee, and production of power.

Expected to cost $42,000,000, the structure will be 6,130 ft. long. It will create a lake covering 37,500 acres, which will be developed for recreational purposes. Maximum head will be 33 ft.

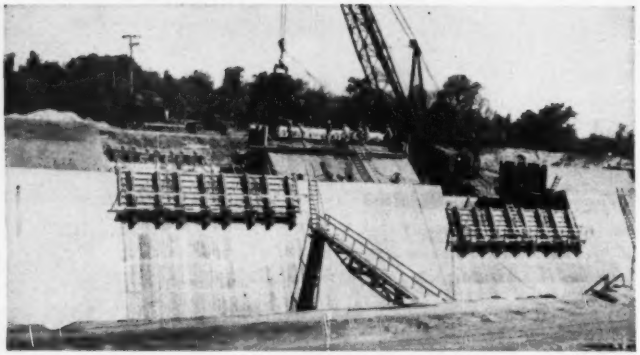
Principal components of the dam are (from east to west): (1) a 3,310-ft earthfill dike, on the west end of which will be the switch yard; (2) a powerhouse containing three 10,000-kw generators; (3) a 760-ft long gated spillway section incorporating sixteen 40 x 30.5-ft vertical lift gates; (4) a navigation lock; and (5) a 1,634-ft long concrete overflow section. The lock and fixed-crest spillway are being built under the current contract. The dike has been completed. The gated spillway, powerhouse and mound for the switchyard will be constructed under future contracts.

Extending along the west bank of the Apalachicola, the lock will be 82 ft wide by 450 ft long and will have a maximum lift of 33 ft. Sides of the lock are concrete gravity-type structures, with copper water stops in vertical construction joints. They rise 56 ft above the concrete lock floor.

The lower guide and guard walls also are monolithic structures; the upper guide and guard walls consist of 14-ft high concrete beams supported on piers. Incorporated in the structure will be intakes, culverts, ports and diffusers for filling and emptying the lock, hydraulically controlled gates and valves, and floating bits for mooring vessels.

The 1,634-ft long fixed-crest spillway is a concrete gravity-type structure with copper water stops in vertical joints. The top, at El 79, consists of an ogee crest and bucket and is from 55 to 80 ft above the foundation and 2 ft above the average level of the upper pool. It is estimated that the crest will be overtopped about once in every 27 years.

• **Porous limestone foundations**—Under the entire site of the lock and spillway is Tampa limestone. It varies from soft, granular and earthy to dense and crystalline. It contains many weakened zones. Weathering, leaching, oxidation and solution channels are prevalent. Below the Tampa



TRAILER, with space for three 4-cu yd concrete buckets, brings two loaded buckets to the casting site, the fixed crest spillway. A walking-type crane, which was mounted on railroad trucks for this job and rolls on tracks, desposits an empty and picks up a full bucket.

limestone is a relatively unweathered and impervious layer of limestone; below that is Suwannee limestone, another highly water-bearing rock.

Use of sanded intrusion grout for forming a curtain in the porous Tampa limestone, to assist in dewatering the lock excavation, was described in ENR July 6, 1950, p. 35.

Specifications called for line drilling and blasting the rock to be excavated for the lock and spillway. The contractor, however, elected to use a shale saw instead of line drilling. This saw cuts a slot in the limestone 6 in. wide and 5½ ft deep. It proved to be a money-saving piece of equipment on this job.

• **Final excavation**—The irregular foundation conditions made necessary considerable preparation before a good foundation could be secured. After excavation to normal foundation grade, the foundation was explored by percussion and core drilling to determine soft pockets and cavernous areas. Clamshells were used for final excavation where holes were large. Airspades, hand shovels and scale pans were employed for deep, narrow holes. Hand picking and shoveling, with scale pans, were utilized for shallow holes. And hand scooping had to be resorted to for cleaning out small holes. These operations were followed by cycles of washing and sounding. Final cleaning was accomplished with air-water jets.

Foundations were kept dry and just prior to the placing of concrete were covered with grout to a depth of ½ in.

• **Remedial grouting**—After concrete was placed to depth of about 15 ft, steps were taken to grout in open spaces in the underlying rock where necessary. The contractor inserted groupt pipes in the last lift of concrete in the monoliths. Through these risers, he drilled holes through the concrete and into the foundation. He injected water under pressure through one of these risers, meanwhile forcing air alternately into each of two other risers. This surging action pushed clay, mud and small pieces of disintegrated rock out through still other risers.

This process was repeated over the whole area of each monolith requiring treatment until the water returning from the risers was clean. Then, these risers were capped, to prevent backwash and to stop mud from being washed back into the cleaned area. Finally, grout was pumped into the foundation voids.

The remedial grouting operation in general, was performed in two stages, each of which was limited to a 15-ft increase in depth, down to depth that subsurface exploration indicated was sufficient for safety.

• **Concrete mix plant**—Air-entrained concrete is being used for the lock and spillway. Typical interior concrete is made with 5 bags of cement per cu yd, the water-cement ratio being 0.60. Typical exterior concrete is a 4-bag mix, with a water-cement ratio of 0.48. For both exterior and interior concrete, the coarse aggregate varies in size up to 6 in. Typical structural concrete is a 5½-bag mix, with a water-cement ratio of 0.44. Maximum size coarse aggregate is 1½-in.

Suitable aggregates are not available locally. The coarse aggregate being used is a limestone obtained from Pelham, Ala., near Birmingham. It is delivered in four sizes—¾, 1½, 3 and 6 in. Fine aggregate—a quartz river sand—is brought in from Dixieland, Ala., near Columbus, Ga.

Aggregates are hauled to Jim Woodruff Dam in railroad hopper-bottom cars. On a siding near the mixing plant, the cars are emptied with the aid of a car shakeout, which vibrates them violently. The aggregates drop onto a metal feeder belt in a tunnel, which deposits them on a 30-in. rubber conveyor belt for transfer to storage piles.

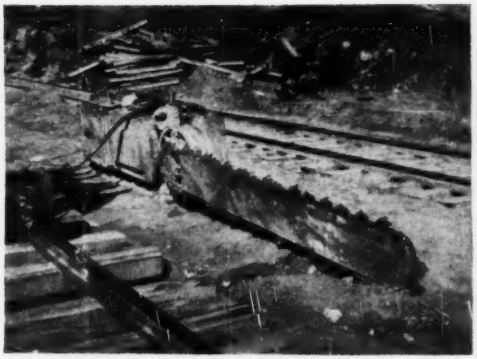
Reclaimed through gates in the top of a tunnel under the storage piles, aggregates fall on a second conveyor belt, which carries them over a highway to the top of the mixing plant. There, they are deposited in one of five bins, according to size, for temporary storage. From the bins, they are discharged into the individual weigh batchers of a standard automatic plant, then into one of two 4-cu yd tilting-type mixers.

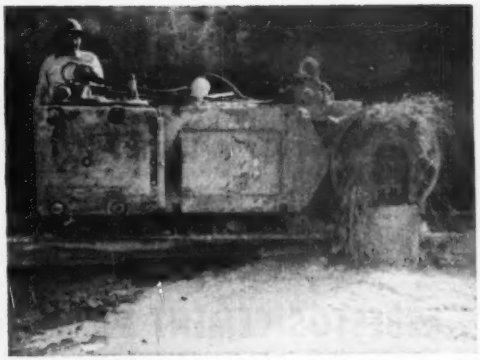
Cement also is brought to the job by rail. From cement hopper cars at the site, it is pumped to a silo at the siding or to a silo in the mixing plant. It is also pumped from the siding silo to the mixing plant bin. From there, it is fed to a weigh batcher and then to a mixer.

Mixing water is obtained from deep wells near the plant. It is cooled, pumped into a tank, weighed out and discharged into a mixer. While it is in the weigh batcher, a liquid air-entraining agent is added to it. The amount of agent is measured out by a time valve.

• **Air cools aggregates**—Specifications require that the temperature of the concrete when deposited in the forms should be between 40 and 65 F. Consequently, during warm weather, cooling is necessary. This is partly accomplished by lowering the temperature of the mix water (by refrigeration) to as near freezing as possible. In addition, the coarse aggregates are cooled by passing cold air through the bins.

Temperature of the cooling air is





SHALE SAW was used to cut the limestone instead of line drilling, in preparation for blasting rock to be excavated for the navigation lock and spillway. Mounted on skids and drawn by a tractor, it sliced a 6-in. wide, 5½-ft deep slot in the rock.

lowered by two cooling coils to about 34 F. After passing through the aggregates, the air is recirculated. It is first washed and precooled by two spray dehumidifiers, however, before it is returned to the cooling coils.

Five large fans in the cold-air ducts circulate the air. Refrigeration is accomplished with one 50-hp and three 100-hp compressors, which are also used for cooling water when not needed for the aggregates. The equipment is housed in an addition to the batching plant.

• **Concreting the monoliths**—The mixing plant has a capacity of 140 cu yd of concrete per hour. Both mixers in turn discharge into a central collecting hopper, which dumps into either 2 or 4-cu yd buckets. Generally, the buckets are hauled to the placing area on 25-ton trailers designed by the contractor.

These trailers have space for carrying three 4-cu yd buckets at a time. However, it usually takes only two loaded buckets out to the site, leaving a space for an empty bucket, and returns with two empties. Thus, when it arrives with loaded buckets at the site, a crane can place an empty bucket on the trailer before a loaded bucket is picked up. After this loaded bucket has been emptied, it is returned to the trailer. As soon as the crane picks up the second loaded bucket, the trailer is hauled back to the mixing plant for another load.

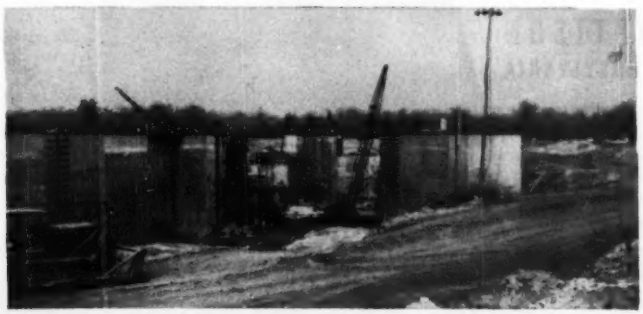
Concrete buckets are moved from the trailer to the forms by either of two 7½-cu yd walking draglines or by a crawler-type crane. For this job, one of the draglines was remodeled to speed up the concreting of the fixed-crest spillway. Mounted on four 70-ton railroad trucks, it rolls on two sets of standard-gage track on the operating bench.

The concrete is placed in the forms in 18-in. layers and consolidated with electric vibrators. Discharge from the buckets is controlled by air-operated gates. Lifts are 5 ft high and can be placed five days after the previous one. Concrete is cured by water spray for 14 days.

Bulkhead faces of high monoliths serve as side forms for low monoliths. Wood forms are made of tongue-and-grooved lumber backed by standard steel channels. These forms are cantilevered upward and anchored by bolts to the concrete already placed.

• **Preparing for new lift**—Much care is being taken to assure good bond between successive lifts. Horizontal surfaces are cut with a water jet under 750-psi pressure when the concrete has partly set. The contractor has found that the cutting job done by this jet is superior to that obtained with the low-pressure air-water type. As in any type of concrete cutting, however, the concrete must be allowed sufficient time to set before cutting is started, to prevent undercutting of coarser particles. The jet is applied with a machine that heretofore has been used mostly for debarking logs and sand blasting iron castings.

Immediately before the new lift is placed, the contractor recleans the joint surface with a 2,000-psi water jet. This removes any debris tracked into the surface by workmen and other foreign materials that would be detrimental to the bonding of the new concrete to the old. Finally, a ¼-in. thick layer of mortar is placed over the surface.



NAVIGATION LOCK has concrete, gravity-type sidewalls. Maximum lift is 33 ft.

• **Builders of the dam**—The lock and fixed-crest spillway are being built under a $9,000,000 contract by a combination of four contractors—Perini, Walsh, Mills and Blythe Bros. Construction Companies. Albert R. Berry is project manager, John J. Feira, Jr., general superintendent, and Delano C. Cannon, project engineer. The concrete cooling plant was designed by Hightower Heat Engineering, Omaha, Neb.

Work is under the supervision of the Mobile District of the Corps of Engineers. Col. W. K. Wilson, Jr., is district engineer. Walter C. Knox is resident engineer and James M. Polatty, assistant resident engineer.

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Cleveland, Ohio

WITH SIMPLE, economical welded-steel construction, Repp & Mundt Construction Co., of Columbus, Ind., upset the traditional theory that it's cheaper to build new than remodel. This contractor converted a 100-year-old grain elevator into a 5-story warehouse at a total cost of $1.85 per sq ft.

Low construction cost was made possible by use of structural steel in standard shapes and lengths, inexpensive erection equipment and elimination of prefabrication, shop work and repeated handling. The $1.85-per-sq ft cost includes the main frame, a steel frame for a freight-elevator shaft, penthouse, elevator equipment, new roof and concrete floors.

The building is 40x100 ft by 56 ft high. When it was in use as a grain elevator, it had 24-in. thick brick exterior walls, with bricked-in windows, and wood floors and framing. Later, the wood floors were sold and the interior gutted.

After the contractor purchased the building, he was faced with the problem of rebuilding or remodeling. On the basis of his past experience with welded factory buildings, he decided to remodel, making use of welded construction.

• Indoor steel erection—Assembling enough steel in advance of construction appeared at first to be an impossibility. However, iron and steel dealers for miles around were combed, and steel was purchased in almost all sizes and lengths. Local yards, including scrap-iron dealers, were able to supply random lengths, from which braces and angle seats were cut for welding to columns and beams.

In addition to the problem of getting steel, there was just as difficult a problem in erecting it. Consideration had to be given to handling structural steel inside the brick walls, which is quite a different condition from building out in the open.

The steel frame consists at each floor level of a central girder and light joists, 3 ft apart. These members are supported by eight 8-in. H-columns spaced 12 ft apart along the center of the building. Continuous for the full height of the structure, the columns rest on concrete footings in new gravel 14 ft below the first floor. Since there is no possibility of uplift, the vertical members, after being plumbed, were fillet welded to bolted base plates.

Beams and joists were used in standard lengths. No ground prefabrication was necessary before putting them in place. The short lengths of members made for convenient and speedy handling by a small crew inside the confines of the brick walls. Each floor was virtually completed, before the crew started on the floor above.

Center girders, which span the 12 ft between columns, are 16-in. wide-flange beams. Angle seats for these beams, and also for the joists, are 4x4x$\frac{3}{8}$-in. and 5x5x$\frac{3}{8}$-in. angles.

Girders were placed on welded seats on the columns with a simple hand-cranked post-mounted winch. Each girder was leveled and then welded to the columns.

Joists are 10-in. junior channels. One end of each joist is welded to the web and top flange of a girder and the other end is set in an 8-in. deep slot in the brick wall. These slots were made extra roomy and later filled with concrete to distribute the load over a wide bearing area. At the wall end of each joist a beam anchor was welded on, for tying to the wall.

Installation of the joists was simple. Each joist was hoisted into place with a hand-operated winch. One end was placed on an angle seat that previously had been welded to the web of the girder. While the hoist cable was held taut, the other end of the channel was blocked up and leveled in the wall slot. Next, the line was slacked off, so the joist could settle on the supports. Then it was checked again for level. If it was level, the girder end was welded.

In addition to the main framing, a steel frame was welded to form an elevator shaft extending from the bottom of the building to the penthouse, where elevator hoisting and control equipment are located. Also, a narrow steel stairway was built between the elevator shaft and the wall. This construction further stiffened this section of the building.

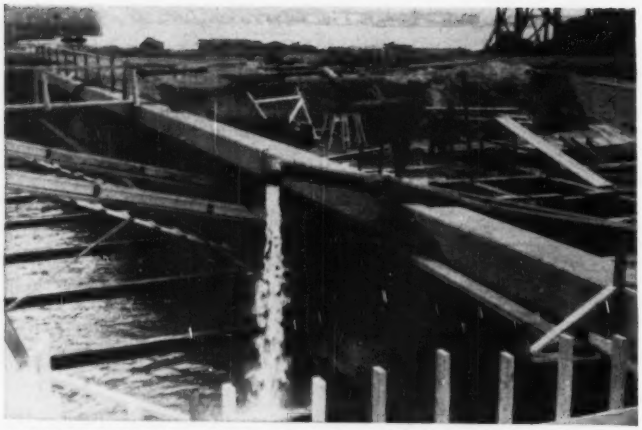
• Welding procedure—Erection was carried out by a five-man crew with one 200-amp gas-engine-driven welder. Found efficient on other welded-steel jobs, this crew consists of a foreman, two welders and two helpers.

The foreman lays out the sequence of work and generally superintends steel supply so that the right structural members are on hand at all times. Two men get a beam ready for hoisting, a welder prepares to tie it into a column and another welder prepares to plumb or level the member.

Necessary cutting and notching was done by flame, on the job, at the exact time of need—much as a carpenter cuts a 2x4 with his saw. All welds were made with an E6010 electrode.

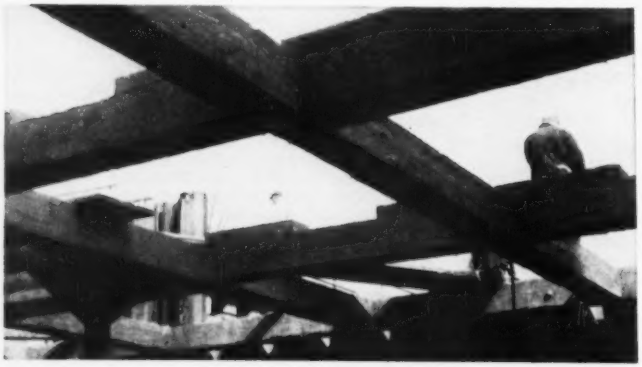
Floors are 4-in. thick steel-mesh reinforced concrete slabs. Second and third floors are designed for 150 psf, and fourth and fifth floors for 125 psf.

No steel was left over after the job was completed. In fact, scrap angles and bars had to be bought to finish it.



PLENTY OF WATER IN THE CANAL—The problem here is to dry a 20-ft excavation that is only 2 ft away from the canal. Water discharges from wellpoints that serve construction of a new plant intake chamber.

BUT NONE IN THE HOLE—Lathers place reinforcing for 4-ft structural mat (under lower bracing) on dry sand. Wall at right is so close to cooling-water intake canal that header and wellpoint must be inside enclosure.



UPPER BRACING consisted of 12 x 12 in. timbers, mostly on 10-ft centers. Hopper and chute (lower left) are ready for concreting. (ENR photos)

Wellpoints dry excavation next to canal

HERE is a simple solution to what might have been a vexing problem.

Jersey Central Power & Light Co. engaged Burns and Roe, Inc. to build a 50,000 kw addition to the utility's plant in South Amboy, N. J. The addition site is on a flat piece of ground between the plant and the Raritan River. Design called for excavation as deep as 20 ft right next to an open channel that brings cooling water to the old plant. This excavation is for a new intake screen chamber, at the point where the new plant will tap the canal for cooling water.

The channel is 17 ft deep at mlw, its water level fluctuating plus or minus 2.5 ft with normal tides. Canal walls are steel sheetpiles with concrete caps at +11. Ground is at +3.

Because excavation was to go as deep as canal bottom, keeping water out of the holes could have been troublesome. But conditions were favorable. Ground was sandy down to −30 (silt below), so Burns and Roe made the logical choice—wellpoints—for keeping the work dry. And they protected excavation with braced sheetpiles, driven to −23 to box in a 40x50-ft area.

Sheetpiles for the 40-ft side adjacent to the canal were driven along a line about 2 ft clear of the canal wall sheetpiles. This close clearance minimized intake tie-in work, but it also made it necessary to install wellpoints inside the excavation (on canal-wall side only). Wellpoints, 25 ft long, were jetted to −26 and connected to an 8-in. header at −2. In all, 71 wellpoints were used around the hole. Two 8-in. pumps (one for standby) served the points, discharging into the canal.

This system kept the hole continuously dry. Foundation for the intake screen chamber is a 4-ft structural mat, resting on the sand at −17.

Overall plan size of the addition is 150x100 ft. Outside the intake area the foundation is a 4-ft structural mat near ground level. This mat gets additional support from concrete piles driven to −21.

Construction superintendent for Burns and Roe is William A. Weston; assistant superintendent is George Holmquist. Wellpoint work was supervised by Nicholas Parformchuk, of Complete Machinery & Equipment Co. Piling subcontractor was Western Foundation Corp., H. P. Burrell, chief engineer.

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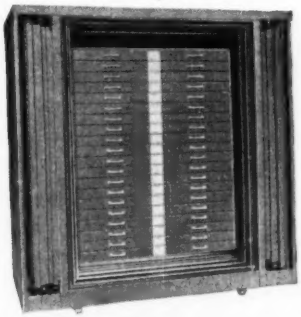

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BOOK REVIEWS

How to handle equipment

AUTOMOTIVE AND CONSTRUCTION EQUIPMENT—By C. W. Lindgren. 257 pp. Published by the author, Box 3620, Washington 25, D. C. $4.50.

Here is a worthwhile addition to the literature of the construction industry. It's a long-needed textbook on the handling and design of construction and automotive equipment. Although it falls somewhat short in its form of presentation, it is still a good basic manual on economical use and maintenance of equipment.

The information is presented in typical textbook fashion. Each chapter begins with a listing of the material to be covered, followed by a general discussion of the equipment including data on the sizes and styles in which it is made. Data are presented on specialized uses of each particular type of equipment. Many hand drawings illustrate terms used in the text and emphasize the exact motions described. The data are complete and, where possible, typical cost figures are listed.

Data on laboratories

LABORATORY DESIGN—Edited by H. S. Coleman. 393 pp. Reinhold Publishing Corp., New York 18, N. Y. $12.

A group of outstanding experts on various phases of building design, as well as research professors and directors of industrial research, wrote the chapters comprising this treatise on laboratory design. It presents valuable data on location, layout, construction and equipment.

Intended as a reference work for architects, engineers, laboratory directors and science teachers, the book, in effect, constitutes a report of the National Research Council Committee on Design, Construction and Equipment of Laboratories. About 20 years ago, to meet requests for help in planning and building laboratories, this committee had made a survey of existing facilities and, in 1930, published a report on its findings. This report is now out of print. Rather than revise it, the committee decided to draft a completely new report.

The book consists of four parts: Part I is a general discussion of interior building materials, plumbing, furniture, light, power, ventilation and safety measures. Part II covers the distinctive characteristics of teaching laboratories. Part III does about the same for industrial laboratories. Part IV consists of brief descriptions of several well known laboratories, including floor plans and photographs of their interiors.

The book could have been made more usful by presentation of some of the data in tabular form. A lot of valuable information is buried in the midst of general descriptive material. Engineers and architects would find it much easier to use the treatise as a reference if some of the findings such as common types of materials used in floors, walls, ceilings; cost of construction and equipment; and typical room modules were given in tables.

Building with brick and tile

BRICK AND TILE ENGINEERING—By Harry C. Plummer. 392 pp. Structural Clay Products Institute, Washington 6, D. C. $5.

This handbook is a revised edition of two books, "Brick Engineering" and "Tile Engineering," previously published by the Structural Clay Products Institute in 1939 and 1946, respectively. It presents engineering data on brick and tile construction, but does not include information on reinforced brick masonry and structural tile floors, because these subjects are covered in other publications of the institute.

Topics discussed in the new edition include properties of structural clay products; design and construction of tile and brick walls, chimneys and fireplaces; fireproofing and furring; and types of bond.

Health aspects of food

PUBLIC HEALTH ENGINEERING—Vol. II—By Earle B. Phelps. 213 pp. John Wiley & Sons, New York; Chapman & Hall, London. $4.

This second volume on the principles of control of environment is every bit as important and useful as the first—but not to civil engineers.

Whereas Volume I covered public health aspects of air and water, in which engineering figures so heavily, Volume II is on the third element of our environment, food. The author collaborates with Walter D. Tiedman on eight chapters, seven of which deal with food-borne disease, milk and shell-fish production and eating-place sanitation.

Chapter 8 is the one of principal interest to engineers since the author chooses to group here with food, rather than in Vol. I with water and sewage, the handling and disposal of garbage and refuse, plus rodent control. The choice is logical, and the brief (15-pp) chapter seems adequate, in view of the organization and purpose of the two volumes.

Concrete centenary

CENT ANS DE BETON ARME—216 pp. Editions Science & Industrie, 6, Ave. Pierre, Premiere de Serbie, Paris 16, France. 1,000 francs.

Last November in Paris, French engineers celebrated the 100th birthday of reinforced concrete, stemming from the combination of metal and concrete made by Coignet in some building walls (1847); Lambot in a barge (1848); and Monier in some flower pots (1849). A three-day meeting was held, the proceedings of which now are published in a handsome format, as a supplement to the magazine Travaux.

The 216 pages, presenting the various papers, also contain many fine photographs of outstanding applications of reinforced concrete (as well as of prestressed concrete). French engineers who followed the early pioneers—for example, Honnebique, Considere, Rabut, Mesnager, Freyssinet and Caquot—have kept this country in the forefront of concrete development. The book reflects this, and is a valuable addition to concrete literature.

Engineering reports

REPORT PREPARATION—By Frank Kerekes and Robley Winfrey. 448 pp. Iowa State College Press, Ames, Iowa. $6.90.

In these days of expanding engineering activity, supervisors who now must pass report-writing tasks to less-experienced subordinates can save time with this book. The supervisor can let the book substitute for much of his instruction time.

While undoubtedly intended as a college text, it is a manual that will serve the needs of engineering offices, small and large. Chapters on the mechanics of style, format and arrangement, and preparation of illustrations, as well as on copy reading and proofreading are presented in detail sufficient to cope with most of the editorial situations met in serious report writing.

The engineering report's traditional features are examined carefully. Investigation-planning, collection of information and effective writing are discussed in a concise and useful maner.

Professors Kerekes and Winfrey have drawn their material from many

years' experience in teaching how to present an effective report. The book has had a forerunner, published by photo-offset in 1948, which was well accepted. This volume, printed by letterpress, is an extensive revision. The pages are interlarded with a profusion of full-size samples to illustrate such diverse matters as questionnaires, fold-out charts and report covers. In addition, complete reports are reproduced. (One titled: Preliminary Proposal for Relocating the Union Bus Station in Ames, Iowa.)

An extra feature is a chapter discussing quite ably the problems and methods of writing feature articles for trade and professional publications.

Indoor lighting

ELECTRIC ILLUMINATION—Second Edition, by John O. Kraehenbuehl. 446 pp. John Wiley & Sons, Inc., New York, and Chapman & Hall, Ltd., London. $8.

This new addition adds several topics to those contained in the 1941 edition. Further elaborating on the principles underlying the specification and design of electrical lighting for commercial and industrial buildings, the additional material covers glare and glare calculations, computation of illumination from line and surface sources and louvered lighting systems. Data on economics of light production have been thoroughly revised to bring the book up to date.

The text is intended for architects and architectural engineers and for a first course in electrical engineering. The amount of mathematics that it contains is limited mainly to simple algebra and trigonometry.

Western river development

THE WATER AND THE POWER: Development of the Five Great Rivers of the West—By Albert N. Williams. 378 pp. Duell, Sloan & Pearce, New York 16. $4.50.

Here presented in readable form is the story of the development to date of the water resources of five great river basins of our western states—the Colorado, the Sacramento and San Joaquin, the Columbia, Missouri and Rio Grande. Much of the book is about irrigation, an account of the operations and the troubles of early irrigators that lead to the passage of the Reclamation Act by Congress. Power also comes in for much attention, including a review of the unsettled fight between California and Arizona over Colorado River water.

In the latter part of the book Mr. Williams sets forth his views on the future development of the nation's water resources. He is not in favor of valley authorities because they have "as many bad characteristics as good." The result, he says, would be nine competing, unintegrated and separate valley authorities. The only road "to truly national abundance is the total assimilation of our water resources into one federal organism." He also favors a completely federalized power program, based on the hydro-electric component of river development.

Notes on Pamphlets, Reprints and Educational Films

A HANDY PUBLIC RELATIONS TOOL to help waterworks operators tell their consumers just how invaluable water is, and how valuable water service has become, is available as an attractive 12-page booklet entitled "What Price Water?" It is especially designed to aid in getting public acceptance of a water rate increase. Copies are available from American Water Works Association, 521 Fifth Ave., New York, N. Y., at prices varying from 20¢ each for 10 to 25 to 12.5¢ each for quantities over 500 copies.

THE CARNEGIE NOTEBOOKS IN CIVIL ENGINEERING—a series of brief, informal articles meant to stimulate study among practicing graduates—have made their start with "The Long and Short of Conduits" by F. T. Mavis, T. E. Stelson and E. H. Miller. In seven mimeographed pages, this initial effort puts methods of calculating flow through pipes, culverts and weirs into tabular arithmetic for quick consumption and presents a selected bibliography for further study. Future notebooks will cover other topics in hydraulics, structures and applied mechanics. Copies may be ordered from Civil Engineering Department, Carnegie Institute of Technology, Pittsburgh, Pa., at 25¢ a copy.

BUILDING MATERIALS and Structures Report 124 of the National Bureau of Standards, "Fire Tests of Steel Columns Protected with Siliceous Aggregate Concrete," by Nolan D. Mitchell, supplements information derived from tests on columns conducted at Underwriters' Laboratories, Chicago, in 1917-18. In the UL tests, it was observed that when columns were protected with concretes made with highly siliceous gravel aggregates, the fireproofing cracked and spalled, exposing the steel before the temperature reached the critical range for failure under load. Data on floors and walls made with similar aggregate were contradictory. In recent tests made by the NBS, failure of silica-gravel concrete protection was not duplicated. (Aggregates used in the UL tests contained 98% chert, whereas aggregate used in the new tests consisted of a relatively pure crushed quartz or of a mixture containing principally quartz, sandstone and quartzite, with only a minor quantity of chert.) BMS Report 124 may be obtained from the Superintendent of Documents, Washington 25, D. C. for 15 cents.

A 13-MINUTE SOUND FILM in black and white, released by the Communicable Disease Center of the Public Health Service, is entitled "Municipal Sewage Treatment Processes" and depicts equipment and methods of treatment and disposal. Intended audience: public health sanitarians and engineering students. Prints are available for short loan, without charge, from the Communicable Disease Center, Atlanta 3, Ga. Purchase is also possible.

New Engineering Books

ENGINEERING AND WESTERN CIVILIZATION—By James Kip Finch. 397 pp. McGraw-Hill Book Co., New York 18, N. Y. $5.00.

PREFABRICATION OF HOUSES—By Burnham Kelly. 466 pp. The Technology Press of The Massachusetts Institute of Technology and John Wiley & Sons, New York 16, N. Y., Chapman & Hall, London. $7.50.

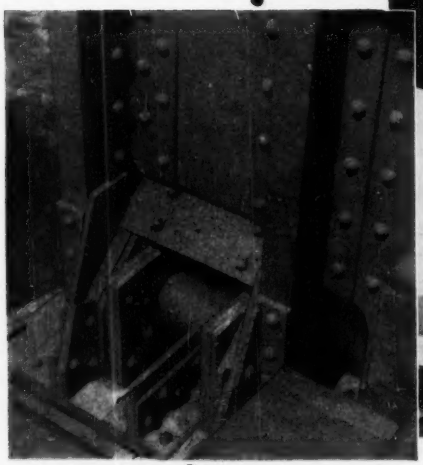
CONSTRUCTION WITH MOVING FORMS—By L. E. Hunter, 56 pp. Concrete Publications Limited 14 Dartmouth Street, London, S. W. 1. $1.75.

STATE AND LOCAL GOVERNMENT IN THE UNITED STATES—By William Vernon Holloway. 460 pp. McGraw-Hill Book Co., New York 18, Toronto and London. $3.75.

TABLES RELATING TO MATHIEU FUNCTIONS—278 pp. Prepared by the National Bureau of Standards. Columbia University Press, New York 27, N. Y. $8.00.

REPORT ON THE UTILIZATION OF THE WATERS OF THE DELAWARE RIVER BASIN—Prepared for The Interstate Commission on the Delaware River Basin, Broad Street Station Building, Philadelphia, Pa., By Malcolm Pirnie Engineers, Albright and Friel, Inc., Consulting Engineers, New York and Philadelphia.

On bridges



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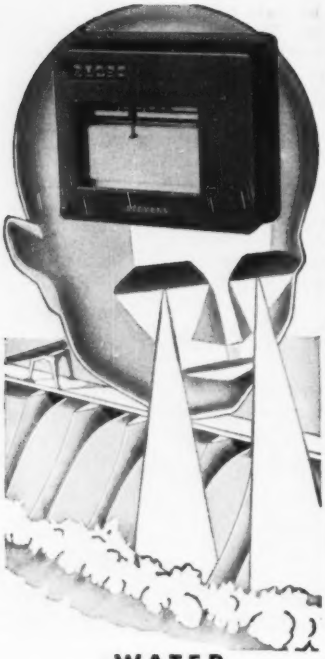

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READER COMMENT

Niagara water supply

SIR: We wish to call your attention to several errors in the caption to picture on Page 26, of your issue of April 26, 1951.

This picture shows the contractor's equipment for the construction of the new intake tunnel at Niagara Falls, New York. The caption states that the tunnel is 8½ ft. in diameter, 3,000 ft long and will cost $2,750,000. Actually the maximum dimension inside the lining, will be 6 ft. 6 in. The tunnel is 3,400 ft. long and the approximate total cost is $757,000. This cost includes not only the tunnel proper, but the intake structure and shaft for which the cost is about $200,000.

The entire project including the new pumping station and filtration plant and alterations to existing structures will cost approximately $7,200,000.

SAMUEL M. CLARKE,
Greeley and Hansen,
Chicago, Ill.

Cracks key to failures

Sir: Prof. P. P. Bijlaard's article on brittle fractures in welded bridges (ENR April 26, p 46) presents some interesting thoughts on possible causes of failure of the Duplessis Bridge. Also it raises a number of questions. Among these perhaps the most obvious are:

1. What is the value of the "brittle strength" of mild steel?

2. What is the cause of the initial crack?

In the tension test of a specimen of mild steel, after necking has taken place a triaxial stress state develops due to the shape of the specimen in the constricted region. During the development of this stage, strain hardening occurs, which considerably increases resistance to further plastic deformation. Finally, the piece fractures in tension. The fracture starts near the center of the cross-section under conditions according to Fig 3 of the article, and therefore, it would seem that the brittle strength has been reached.

Ductile steels may show as much as 75% reduction of area in such a test. If we assume an ultimate strength of 55,000 psi this means that the brittle strength would be of the order of 220,000 psi. If, then, this reasoning be valid (apart from some point of stress concentration), we must justify initiation of a fracture under triaxial stress conditions at a weld in a structural member that has been designed for an average maximum tensile stress of 20,000 psi. It does not seem likely.

While it is possible that triaxial stress conditions may be brought about by shrinkage stresses due to welding, the writer has seen many welded mild steel specimens that broke in tests with a ductile fracture in the heat-affected zone adjacent to the weld. He does not recall seeing any with a brittle-type fracture.

As for the second question, there are many causes of an initial crack. It is easy to see that once a crack, however small, is formed, the stress concentration at the end of the crack is quite capable of producing a tensile stress in excess of the tear resistance of the metal. Some metals offer larger resistance to crack propagation than others. The reason for this is not clearly understood.

Recently, examination of a hollow shaft, which had failed by a creeping fracture process, showed that the initial cracks started from small corrosion pits, which formed points of stress concentration. The cracks were readily seen at numerous places in the metal under a microscope.

Not long ago, the writer read a report on cracks that occurred in welded steel pipe. Thorough investigation revealed that the practice that welders have of knocking the slag off an electrode by striking it against the pipe caused numerous small cracks to occur in the cold metal.

There are, of course, many other causes, but it is most important in any investigation to search for the initial cracks and the causes of them. Sometimes they are obvious and sometimes never found. After that, the theory may be considered.

I. F. MORRISON
Professor of Applied Mechanics
University of Alberta
Edmonton, Alberta

Maryland road test

Sir: In your issue of March 29, p. 110, under the heading "Pavement Tested Under Truck Loads" is the following:

"Although numerous questions as to the method of conducting the test have been raised by trucking organizations, the demonstration that the test road gave of the damage that could be done by loads in excess of the widely used 18,000-lb load limit

(*Continued on page 46*)

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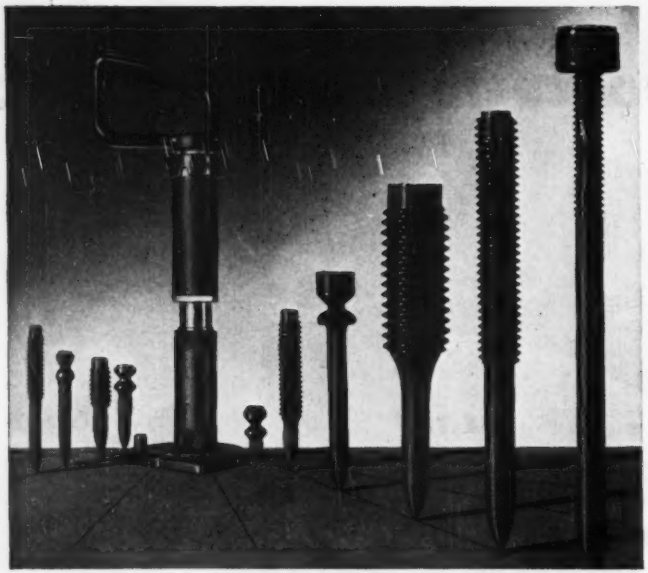

SCHOOL BUILDERS PACK 480 MINUTES INTO 1 HOUR

With time so pressing and man power so urgently needed, architects and contractors are utilizing high-speed RAMSET FASTENING SYSTEM for faster, more economical construction of school buildings. Because RAMSET can fasten into steel, concrete, other suitable materials at the rate of *400 per day per man*, instead of only 50 per day per man by old-fashioned methods, these building men are packing 480 minutes into every fastening hour.

The time-saving, cost-saving advantages of RAMSET SYSTEM, plus its great versatility, account for its use in schools and other educational buildings throughout the country. For instance, in the West Side High School in Atlanta, Georgia, upwards of 40,000 fastenings were made with RAMSET, by the *general contractor, and by sub-contractors on acoustical, sheet metal, electrical and plumbing installations.*

Wherever your specifications call for fastening or anchoring involving steel, concrete, other suitable materials, RAMSET saves time and money, gets the work finished faster. Our local representatives will gladly demonstrate RAMSET and show you where and how it can be applied to schools, commercial and industrial buildings under construction or in the planning stage. Or, write for details in Architectural and Engineering Bulletin.

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is very impressive, even when allowance is made for errors in conducting the tests that may have exaggerated the destructive effect of the moving loads."

Will you please tell me what the "errors in conducting the tests" were? We certainly did not want to exaggerate anything and will want to guard against errors on other projects.

FRED BURGGRAF
Associate Director
Highway Research Board
Washington, D. C.

Editor's Note: In comment on the test, issued by the American Trucking Associations, Inc., the following statements were made:

Though the four sections under test are nominally 12-ft wide lanes, it must be remembered that the operation simulated a 10-ft wide lane, with the vehicles never running on the inside 2 ft of the lane. This was not normal operation, and imposed a heavy weight concentration on the outer edge of the lane. In addition, in the attempt to have the vehicles operate as close to the edge of the slabs as possible the inevitable occurred; the drivers ran with with the outside dual wheel off the slab and on the shoulder. This caused the shoulders to dust out and in turn form a ditch along the side of the slab into which water drained, and in turn the water ran under the slabs.

This is important, for the ditches in the shoulder adjacent to the slab were not maintained until the test was a month old. By that time a large amount of water had drained into these ditches, run under the slab, and in turn suspended the fines of the subgrade. This inevitably led to pumping. . . . This pumping, of course, forced the subsoil from under the slabs and then, lacking foundation, the slabs began to bend and then, axiomatically, to crack. Once this damage had commenced it was irreparable and no amount of subsequent dry weather could make up for it.

Certainly, the shoulders were bladed perhaps twice a month while normal roads in the area bladed perhaps once or twice a year. However, the traffic carried by the test section was well over 80 times the volume of the regular roads, not even considering the test section was being operated as a 10-ft lane. Thus it may be said that though shoulder maintenance was frequent it did not meet the frequency of normal highway care in proportion to the volume of traffic carried.

Again, this cursory maintenance was only conducted on the unstable shoulders, and nothing was done to alleviate the difficulties encountered with the slabs. Any highway department that allowed slabs to pump and slap for a week until they broke would be considered derelict in its duty, and yet this was exactly what was done on the test site. It is an old case of a "stitch

in time". Had the slabs that showed signs of pumping been grouted or undersealed promptly, no damage would have resulted.

Our statement concerning this test was intended to indicate that even if one accepts the conclusion of the American Trucking Associations that the manner in which the trucks were operated resulted in more damage than would have occurred under normal traffic of like density—which we do not—the damage done by the heavier trucks still would be of such magnitude as to indicate that the widely used 18,000-lb axle-load limit is a reasonable restriction that should not be exceeded frequently on roads similar to the one under test in Maryland.

Our statement would have been clearer had it said "even when allowance is made for errors that *may have been made* in conducting the test." Addition of the italicized words would have indicated that we were not convinced that errors had been made.

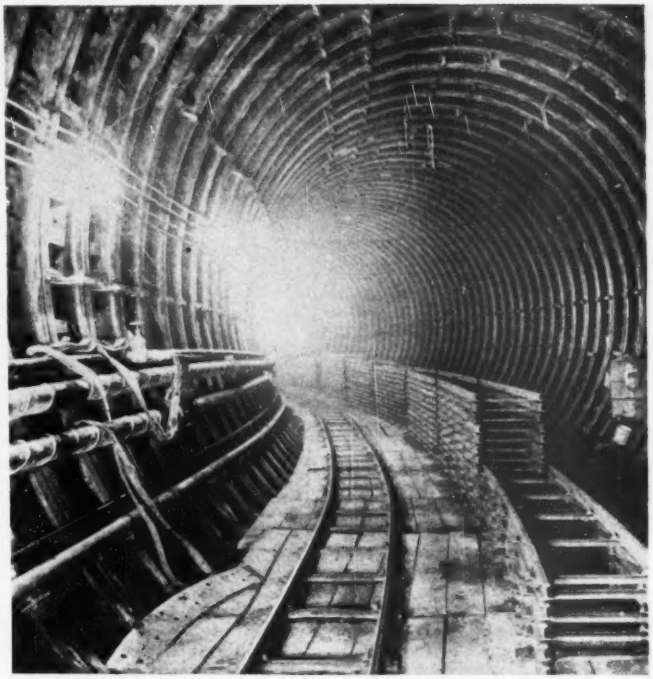
Tests verify fractures

SIR: Mr. Bijlaard's article, "Brittle fractures in welded bridges," (ENR April 26, p. 46) is timely and should help to focus attention of designers upon possible brittle fractures in welded structures subjected to low temperatures. Failure of welded ships during World War II is another example worth recalling, since many of these failures occurred while the ships were in northern waters, hence at low temperatures.

Between 1946 and 1948, the Welding Research Council investigated various mechanical properties of a semikilled firebox steel at different temperatures, the metal being subjected to biaxial stresses by subjecting a sphere to internal pressure. The results may be found in "Tests of Spherical Shells in the Plastic Range," by Joseph Marin, V. L. Dutton and J. H. Faupel, WELDING RESEARCH SUPPLEMENT, vol. XIII, no. 12, Dec., 1948, pp 593-607. Some tests illustrated the significance of Mr. Bijlaard's Fig. 4; high-temperature failures were ductile, while those at lower temperatures were brittle. One fracture commenced as a shear failure and then became a brittle failure as the fracture progressed.

As the volume of construction increases in Alaska and northern Canada, it becomes increasingly important that designers consider the action of metals under the extreme winter conditions experienced in those regions.

V. L. DUTTON, *Instructor*
Pennsylvania State College,
State College, Pa.



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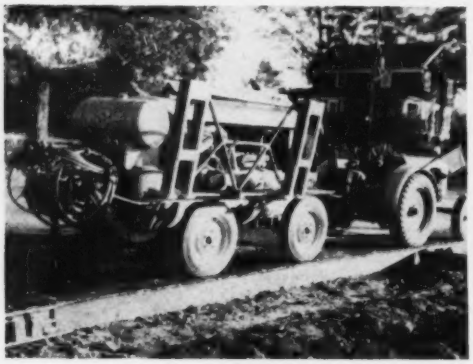
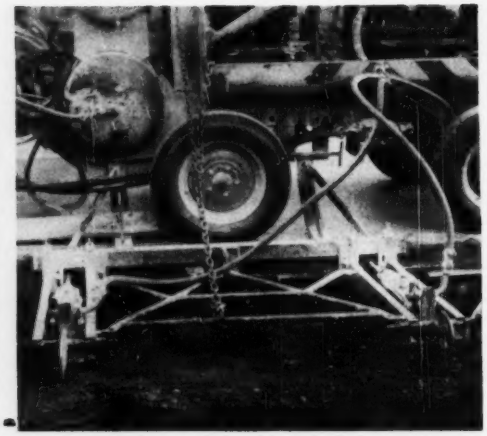
FIELD AND OFFICE





Horizontal holes for joint supports on edge of concrete pavement are drilled rapidly by two jack hammers mounted on a single frame

Two jack hammers drilling simultaneously speeded the placing of horizontal holes in the edge of a concrete pavement in Rochester, N. Y. The holes were 4½ in. deep, and were to be used for longitudinal joint supports to prevent separation of a widened area from the original pavement. The rig used was designed by Walter A. Phillips, maintenance supervisor, and Leonard E. Bach, machinist, of the Public Works Shop at Pittsford.

Each hammer is mounted on four 3½-in.-dia steel rollers traveling in two 4-in. steel channels with flanges to the inside, forming a box-like track. The tracks are five feet between centers and are attached to 5 to 10-ft long 3x3x⅜-in steel angles that act as a shoe riding the edge of the concrete pavement. The shoe is hinged to a compressor by two ¾-in. steel pins. These pins permit removal of the drilling attachment.

Time required to drill two holes, move, and drill two more is 56 sec. Rate of penetration is controlled by handles on an 8-in. cam controlling the action of the jack hammer. Production rate on the West Henrietta job was 3,000 to 4,000 ft of pavement edge per day with holes drilled every 5 ft.

Experts in the Department of Public Works estimate that the new device saves the state approximately $150 per mi of road.

Bridge repair headaches solved by precast slabs

Faced with the problem of redecking old timber bridges, the Florida State Road Department believes it has found an economical solution in precast concrete slabs 3 ft wide and 4 in. thick. Length generally equals half the width of the roadway—about 11 ft. Main reinforcing consists of six ½-in. bars placed at the center of the slab.

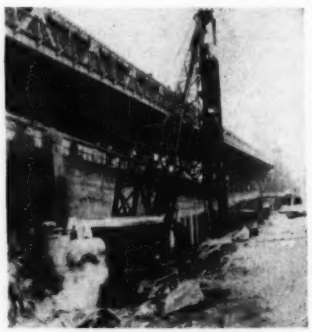
Most of the timber spans being replaced are 15 ft long. Joists are 6x12-in. timbers on 2-ft centers.

In replacing worn-out decks, old deck planks are removed from half the roadway, leaving the other half open to traffic. Five new joists are generally added to each span—two under each lane and one in the center of the roadway. Seriously deteriorated joists are also replaced.

Precast planks are then placed directly on the joists, and are fastened in place by bolting to 4x8-in. hold-down timbers placed transversely to the roadway and beneath the joists. Three ⅝-in. hold-down bolts are used per slab.

This process is not expected to completely eliminate deck maintenance, but it has reduced it drastically. Some cracking of slabs is expected, and isolated slabs will probably have to be replaced from time to time. First cost of the slabs has averaged about 75% of that for a comparable timber deck. With 4x8 timber decking costing $275 per Mfbm in place, this amounts to $89 per cu yd, if converted to a volume basis. Cost of the precast slabs complete in place, including reinforcing has thus far averaged $65 per cu yd.

W. E. Dean is engineer of bridges for the Florida State Road Department.



CRANE WITH HOT CABOOSE—Arthur A. Johnson Corp. and Mason & Hanger Co., Inc., of Long Island City, N. Y., built a special platform at the rear of their Thew-Lorain crane to mount a steam generator for pile driving. The hammer drives steel supporting piles to a depth of 15 ft, at a rate of 20 to 25 per 8-hr day.

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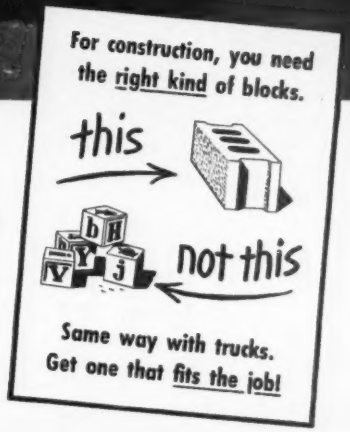

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If it's dependability you're after, (and who isn't?) you'll go for features like the new Dodge moistureproof ignition and the new high-torque capacity starting motor. They help make starting easier in bad weather.

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Every unit that SUPPORTS the load—frame, axles, springs, wheels, tires, and others—is engineered right to provide the strength and capacity needed.

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Nice at Rice... those better Truscon Donovan Steel Windows

These are well-engineered windows . . . for well-engineered lighting and ventilation . . . in the Engineering Building at Rice Institute, Houston, Texas.

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MUNICIPAL

New York City to try parking meters; other news of traffic problems

In New York City Lloyd B. Reid, commissioner of traffic, has asked for the purchase and installation of 1,500 parking meters to be set up in five test areas in four of the boroughs:

In Manhattan, one area will be in the business section of the lower East side along the Bowery between Schiff Parkway and East Broadway. Another will be along 125th Street between Park and Morningside Avenues.

In Brooklyn, meters are to be installed near the shopping district of Fulton Street. In the Bronx, in the Fordham Road-Grand Concourse shopping area; and in Queens in Sunnyside adjacent to Queens Blvd., from 39th Place to Greenpoint Avenue.

A 1-hour parking limit is proposed except in Queens, where it will be two hours. The fee is 10 cents for the parking period.

Other traffic developments include:

Seattle, Wash.—A perennial headache for the city engineering department is Roosevelt Way, main arterial serving the northeast section. Its four lanes are not enough for traffic and parking. Widening the streets would be too expensive. City Engineer R. W. Finke recommended making the street a one-way thoroughfare, but business interests killed the plan. Then the city council decreed no parking, but a merchant went to court and had the plan declared illegal. Then the council wanted to allow 3-minute parking for passenger cars and 30 minutes for commercial vehicles. Merchants complained again and promised to set up a special committee to work with city officials for a solution. Meanwhile, parking narrows the street to two lanes most of the day.

Baltimore, Md.—The Federal Reserve Board has amended its credit regulation "X" to permit a continuation of the city's $10,000,000 off-street parking program. The city will lend private developers from 75 to 85 percent of the money needed to build garages.

Philadelphia, Pa.—Receipt of what is said to be the largest repeat order ever placed in the parking meter industry, covering 15,000 automatic-type meters for Philadelphia, has just been announced by The Dual Parking Meter Co., Canton, Ohio. These 15,000 meters, together with 770 dual meters previously installed undoubtedly will give Philadelphia the world's largest parking meter system.

North Carolina—The legislature has passed a law authorizing municipalities to set up parking authorities empowered to provide off-street parking, including municipal parking buildings.

Miami Beach, Fla.—Clubhouse property on the east side of Michigan Avenue between Lincoln Road and 17th Street will be bought by the city for $119,800 for parking lot purposes. In the meantime, a survey is to be made which may result in the construction of multi-deck public garages.

Ohio—Right of Ohio cities to operate off-street parking facilities will be tested in a suit placed before the Ohio Supreme Court recently. Testing the enabling legislation for off-street parking passed by the 1949 legislature, Columbus City Attorney Richard W. Gordon asked the court to require Mayor James A. Rhodes and City Auditor R. P. Barthalow to sign $4,000,000 worth of revenue bonds to finance a public parking program. The suit seeks reversal of a 15-year-old ruling of the Ohio Supreme Court which, parking authorities contend, invalidates the 1949 legislation on off-street parking. Following enactment of the state law two years ago, Columbus approved an off-street parking ordinance last January. The mandamus writ requested also would require Barthalow to deliver the bonds to the Ohio Co., Columbus, an investment firm, upon payment from them.

RESERVOIR WITH A PARK TOP—Here shown is the start of construction of the roof of a reservoir at Pasadena, Calif., that is to become a park and playground. The reservoir covers an area of 15 acres and will hold 50,000,000 gal of water brought to the city through the Colorado River aqueduct. Upon completion of the concrete roof it is to be covered with earth to a depth of two feet. On this will be built a play center, with tennis courts, baseball diamond, football field, badminton courts and a running track. There will also be automobile parking space for a new home development surrounding the project.—Wide World photo.

Jurisdictional controversy about Maryland pollution

The attorney general of Maryland has ruled that the state's Water Pollution Control Commission cannot force a city to install a sewage treatment system.

That prerogative belongs to the State Health Department. Consequently there is some doubt about the validity of the order issued by the pollution commission last summer to compel the city of Cumberland to treat its sewage before dumping it into the Potomac River. However, the city has already obtained legislative approval for a $1,500,000 program to finance compliance with the order.

More fluoridation—Mayor Thomas A. Burke of Cleveland, Ohio, has approved a plan to add fluorine to the city's drinking water at a cost of about $150,000 a year, with suburbs sharing the expense. The proposal must be approved by city council. Among Indiana cities planning to fluoridate their water supplies are Indianapolis, Evansville, Fort Wayne, East Chicago, Gary, Hammond, and Lafayette.

(Continued on next page)

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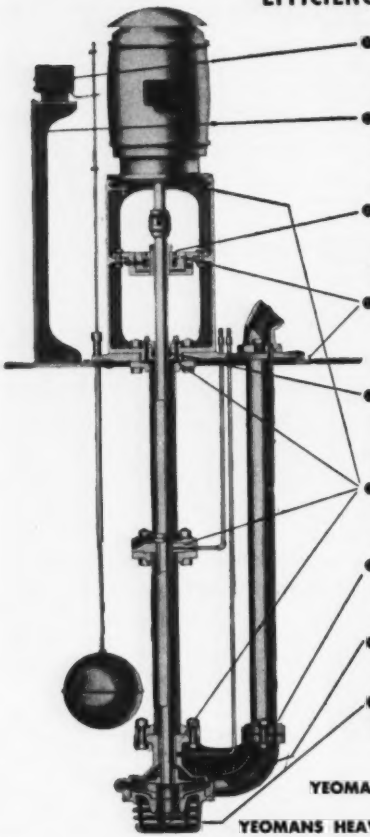

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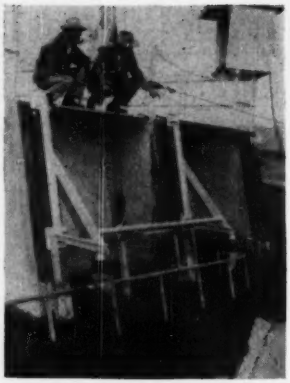

ELECTRIC FISH SCREEN—Tom Cain, left, superintendent of San Jacinto Reservoir of the Metropolitan Water District of Southern California, and Henry T. Burkey, of Hollywood, who has invented a fish screen which prevents fish from going where they shouldn't by setting up an electrified zone of water which they don't like, are shown inspecting the type of electric "fence" installed at San Jacinto Reservoir. This screen is about 18 ft deep and 12 ft wide. The electronic unit which provides the energy is at the top of the outlet. Here, a trash screen is used as part of the electrode system which is suspended out in front. This invention ought to be helpful for municipal water superintendents who often have trouble with fish getting into their filtration plants.—Wide World Photo

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Litigation over slum area—Questions about the redevelopment of a slum area in Indianapolis, Ind.,—a 7-acre tract containing 114 substandard dwellings occupied by 380 persons—may be decided by the United States Supreme Court. The Indiana Supreme Court recently denied a rehearing to the area owners, who lost an appeal last June in the state high court. At that time, the court upheld the five Marion County Superior Court judges who approved the 1948 resolution declaring the area blighted. Seth Ward, counsel for the owners of the area, said he will carry the case to the U. S. Supreme Court.

Toledo airport plan—Toledo, Ohio, has retained Airways Engineering Corp. of Washington, D. C., to conduct an economic survey of the city's air potential and for the preparation of an airport master plan. The primary purpose of the survey will be to determine if the present airport is adequate when expanded to meet Toledo's present and future needs or whether a Class V airport located on a new site is required.

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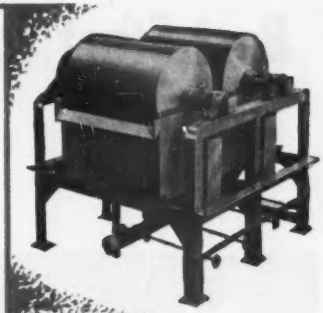

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(Patent Pending)

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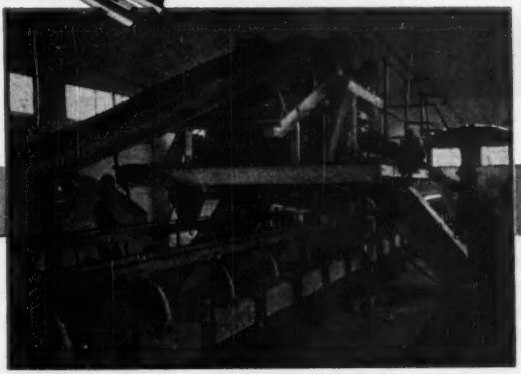

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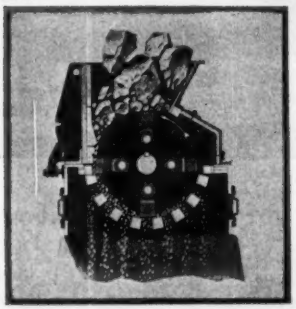

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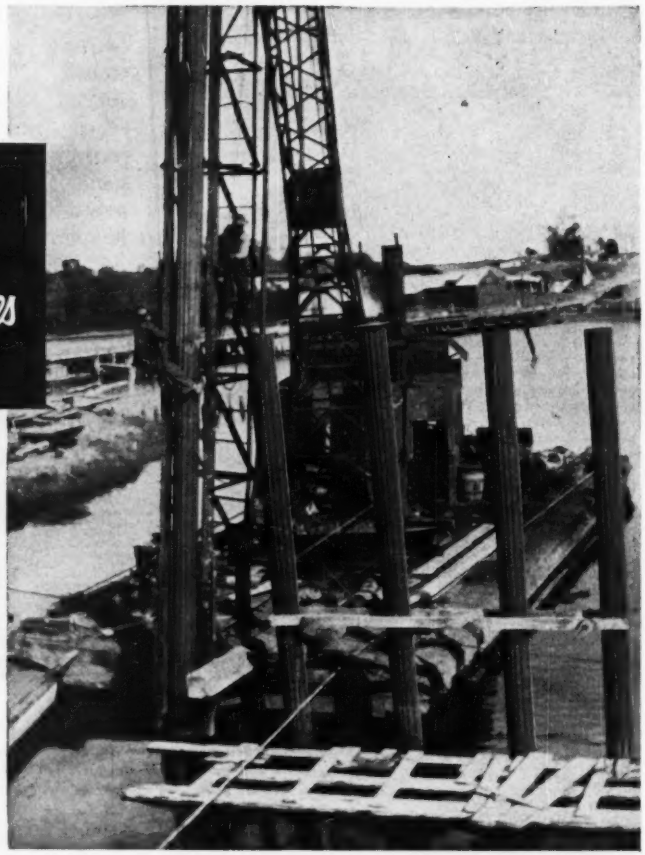

USING every possible way to save construction materials, time and money is always important. Today it's doubly so. And one of your best ways is with Monotubes. Just see the advantages you gain with these cast-in-place steel piles!

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FOREIGN

Iraq has big plans for 5-year development

Three irrigation projects to cost a half billion dollars figure in the Iraq Development Board's five-year plan officially approved by Parliament. Chief among the plans is the Wadi Tharthar flood control project on the Tigris River, about 40 miles northwest of Baghdad, designed to safeguard a large area from seasonal floods. Cost would be partly covered by a loan from the World Bank made last year to facilitate purchases in the scarce-currency and sterling areas.

The other two schemes are mainly designed for water storage for irrigation and aim at reviving the agricultural regions concerned. One is the Diyalah scheme, including a dam at Derband-i-Khannandi and a regulator near Khan Beni Saad northwest of Baghdad.

The Dokan project involves dams on the Zab River at Hawija and on the Adhaim River. These projects are listed in the general plan and have already been approved by Parliament. Work is scheduled to begin this year and to be completed during the fiscal year 1955.

Other schemes include the Habbaniyah irrigation project, a canalization system for Amarah Liwa, about 150 miles southeast of Baghdad and in the Gharaf River region, the development of the Hilla Canal, and regulating the Euphrates side channels in the Suqal-Shiukh area. A drainage program falls within the framework of the overall plan, and also the reclamation of certain agricultural lands, the construction of domestic water supply systems, artesian wells, the elimination of swamps, and forestry work.

It is planned to construct public highways in various districts, while public health schemes are also well to the fore in the Development Board schedule; these include the construction of hospitals, school buildings, other public buildings, and housing schemes.

Lack of funds holds up W. Bengal's gasoline plant

India's plans for a $45,000,000 synthetic gasoline plant in West Bengal are sagging. Reason: $45,000,000.

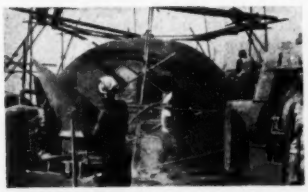
The scheme for production, to be centered around the town of Ondal, where 600 million tons of suitable coal are located, was drawn up two years ago by Koppers Inc., at the request of the government of India. Indian and American scientists are all agreed that the project is sound, particularly since India is almost without natural reserves of oil. It would yield 70,000 tons of aviation petrol annually, as well as half a million tons of domestic coke and other petroleum products.

If India had any serious plans for national defense, the Ondal project would be top priority. In India, however, highest national reconstruction priorities are hydro-electric power, irrigation works, fertilizer factories and agriculture. Koppers' blueprint is, therefore, probably headed for a dusty shelf in New Delhi along with dozens of other visionary plans which India has evolved in its first flush of independence.

YUGOSLAV 5-YEAR PLAN—Boys and girls shovel sand for a concrete mixer as they work on a project connected with Yugoslavia's 5-year plan for construction of a new capital city of Belgrade. Yugoslavs of both sexes from 14 to 50 years of age—volunteers who are unpaid but provided with food and clothes—participate. —Wide World photo.

For Colombian highways—The International Bank for Reconstruction and Development has approved a loan of $16.5 million to the Republic of Colombia, for highway construction and rehabilitation. Completion of the highway work planned will give Colombia a continuous network of all-weather roads to serve the more important business and agricultural sections of the country. Construction of 296 miles of connecting highway links, and rehabilitation of 1,706 miles of deteriorated sections of major trunk roads is planned, as well as establishment of repair shops and the training of personnel to carry on the work.

(Continued on page 56)



BALLOON CONCRETE HOUSE — With American pneumatic forms and concreting equipment bought from the United States with Marshall Plan funds, the French government is building these shelters for natives and units of the French airforce in West Africa. All labor and materials are recruited in the Dakar area. The picture above shows construction work on a single house, while the view at the right is of a whole community of houses near Dakar constructed along these lines.

One native crew of five men completes one house in two days, at a cost of less than $1,000. By this method all materials, such as concrete, insulation, water proofing, etc., are shot or blown into place on the balloonlike form with air pressure. The air forms are made by the Goodyear Tire & Rubber Co., of rubber-coated nylon fabric. The architect for the project is Wallace Neff of the Airform Construction Co., 5927 Franklin Ave., Los Angeles 28, Calif.

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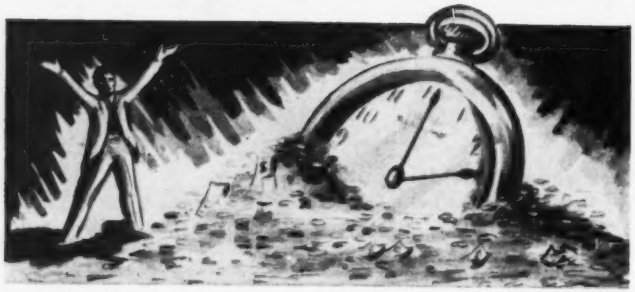

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Foreign . . .

Old lake plan is revived to store waters of the Nile

The Egyptian Ministry of Public Works has an ambitious scheme to turn the Wadi Rayan depression in the desert east of the Nile valley into a giant reservoir for storing flood water, with collateral benefits for fishing and recreation.

This idea is not entirely new as some 80 years ago Cope Whitehouse, an American archeologist, urged the Egyptian government to run flood water from the Nile into Wadi Rayan to make an artificial lake. However, at that time British engineers examining the possibilities of husbanding the flow of the Nile, considered that the most practicable means of storing the water would be to build a dam at Aswan, which was done in 1898-1900. This has met Egypt's immediate needs for irrigation.

Now, with an eye to the future, the Wadi Rayan plan is being considered again. About six months ago Sir Cyril Fox, a British geological expert, was called to Egypt to make a thorough study of the geological aspects of the project. His report is now in the hands of the Minister of Public Works.

According to a government spokesman, the project would cost about $57,000,000. However, the plan would render more than 1,000,000 acres of desert land fit for cultivation, and make possible the creation of a hydro-electric plant to produce power much needed in the region, while the impact of the new irrigation on the food situation would be supplemented by an inland fishing industry to be created on the vast new fresh water lake. The scheme not only would relieve Cairo and lower Egypt from the constant threat of floods but would also store in Egyptian territory life-giving water which otherwise would run out to sea unused.

Unlike neighboring Lake Qaroun, which since ancient times has served as a natural overflow basin of the Nile River lately controlled by man's ingenuity, the Wadi-Rayan depression will have to be connected artificially with the Nile by a large canal similar in section to the Suez Canal.

Such a canal would first cross 12½ miles of the Nile valley, winding its way to the desert under existing railways, highways, canals, and drains. The canal would then pierce the desert ridge which rises over 100 ft above the Nile Valley, and travel about 19 miles before reaching the Wadi-Rayan depression.

To control the canal, a dam similar

to the new Delta dams north of Cairo, would be built across the Nile. It is here that the hydro-electric plant would be installed. When completed, the canal would reclaim large areas of low-lying desert land in the neighborhood and along the perimeter of the future reservoir.

The Nile is about 4,000 miles long and its basin has an area of more than 1,000,000 sq mi. Black sediment brought down the river from the interior of Africa settles in the Nile delta and makes it extraordinarily fertile.

Peru has a 6-year road-building plan

A 6-year road-building plan for Peru has been announced by President M. A. Odria and subsequently publicized in detail by the Peruvian Ministry of Development and Public Works. The total cost of the plan is estimated at $85,000,000.

To the 1,800-mile "Roosevelt Highway" that runs on or near the coast between the frontiers with Ecuador and Chile, there is to be added a parallel northwest-southeast "Pan American Highway of the Sierra", connecting Bolivia and Ecuador over a route that has not been much used since the days of the Incas.

At three points major highways will be built from the Pacific over the Andes and down to the navigable waters of the Amazon system. The plan calls for 2,834 miles of pavement—asphalt for the coast and Sierra roads and concrete pavement for the jungle.

First attention will be given to the Roosevelt Highway. This is mostly paved but it is to be widened from two lanes to three. The first section, to be completed next year, will be the 200-mile Lima-Ica stretch.

Next in importance is the Central Highway from Lima over the Andes to the smelting town of La Oroya, 118 miles inland.

An "A" priority will also be given to work on the Pan-American Highway of the Sierra, which consists of improving existing roads between the Bolivian border and Huanuco, then cutting through difficult high Andean terrain to Huaraz and Cajamarca to join the existing coastal highway at Olmos in the northern Department of Lambayeque.

South of Lima the third transverse highway will cross the Andes from the iron port of San Juan to Cuzco and Quincemil and be continued through the jungle to Puerto Maldonado, from whence there is launch navigation on the River Madre de Dios to Bolivia.

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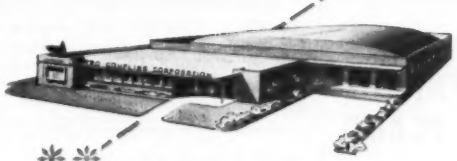

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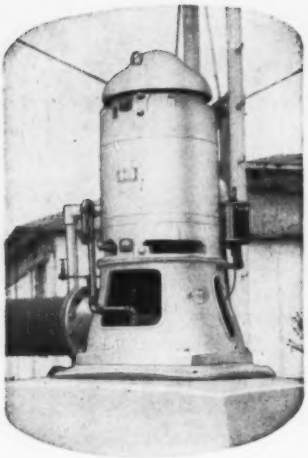

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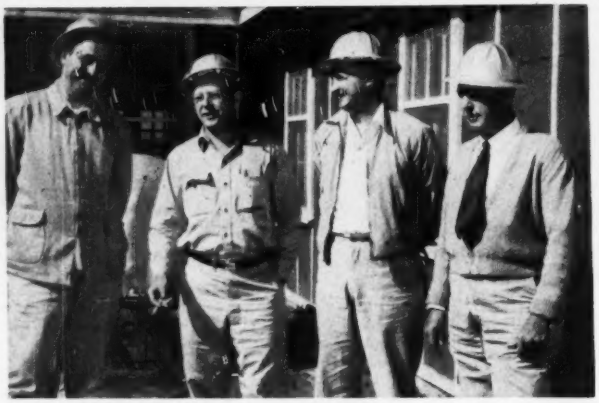
MEN AND JOBS



AT JIM WOODRUFF DAM—Leaving the field office after a staff conference are, left to right, James M. Polatty, assistant resident engineer, Walter C. Knox, resident engineer, William E. Webb, foundation engineer, and Willard F. Simpson, field engineer, some of the Corps of Engineers supervisory personnel at Jim Woodruff Dam, near Chattahoochee, Fla.

New Appointments

Highway departments

Edwin L. Hart to be superintendent of highways, Hamilton County, N. Y.

R. E. Boyer transferred to 6-county Allentown dist., Pennsylvania highways, as engineer.

C. O. Beckley, dist. engineer, Williamsport, Pennsylvania highways.

State, City and County

A. T. Hayes, traffic engineer, Lansing, Mich.

L. R. Gare, city engineer, Birmingham, Mich., also superviser Dept. of Public Works.

D. F. Boen, now chief engineer of the Eastern Municipal Water Dist., Calif.

E. J. James now state construction engineer, Louisiana.

Miss Tess M. Sedweek appointed consultant to the N. Y. State Thruway Authority—speakers bureau, research and planning.

Government agencies

J. W. Gibbs, office engineer, Juneau, Alasaka, for Bureau of Public Roads.

J. B. Spiegel, dist. engineer, surface water branch, Geological Survey, Topeka, Kan.

Daniel J. Casey, director engineering division, Chicago Operations office, U. S. Atomic Energy Commission.

Joseph A. Armstrong will head the Berkeley, Calif., engineering office of AEC.

Carl F. Clausen has been made consultant in Building Materials Div. Facilities and construction bureau, of National Production Authority.

Consulting engineers

Benjamin E. Beavin, Sr., is now a professional engineer at Linthicum Heights, Md.

Stevens & Koon, consulting engineers, are now located in the National Building at 732 S.W. Third Avenue, Portland 4, Ore.

Seward H. Mott, former director of the Urban Land Institute, research and educational organization in the land planning field, has announced the establishment of his own consulting firm, Seward H. Mott Associates, in Washington, D. C.

Industrial and Commercial

Leo A. Castler, project engineer in General Petroleums engineering department, Vernon, Calif.

G. R. Davis becomes general manager and chief engineer of the Orrawa, Ont., Hydro Commission, replacing I. Canniff, retired.

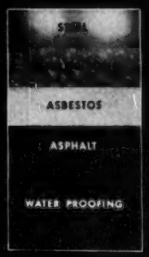
Chas. Reid, resident engineer Daniels Constr. Co., Greenville, S. C.

Corps of Engineers

Lt. Col. Thos. H. Lipscomb named district engineer at Portland, Ore.

(Continued on page 62)

WALLS FOR A WIDE RANGE OF SPECIFICATIONS



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• Galbestos metal for defense plant constructio provides a wall resistant to fire, corrosion and bla It can be well designed, worthy of permanent stru tures. It is maintenance-free. And, whether you wa a mere skin, with or without insulation or panel the Robertson method enables you to build fast with Galbestos metal than with any other materia

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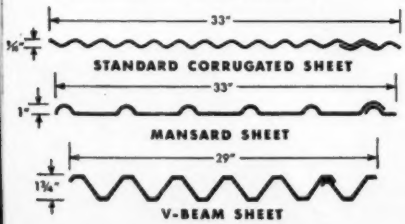

THE TOP-SPEED FASTENING METHOD

permits all fastening work from the outside, eliminates interior scaffolding. This new method permits erection crews to place twice as much material in the same time, with safety. Top-Speed Insulation is a Robertson method for applying insulation from the outside, before the Galbestos is fastened over it. This method also halves the time. It makes a good-looking job inside. Needs no painting.

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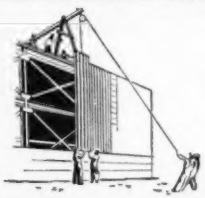
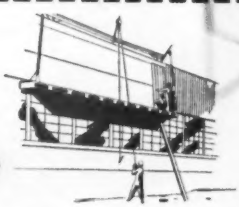


Q-PANEL OR G-PANEL



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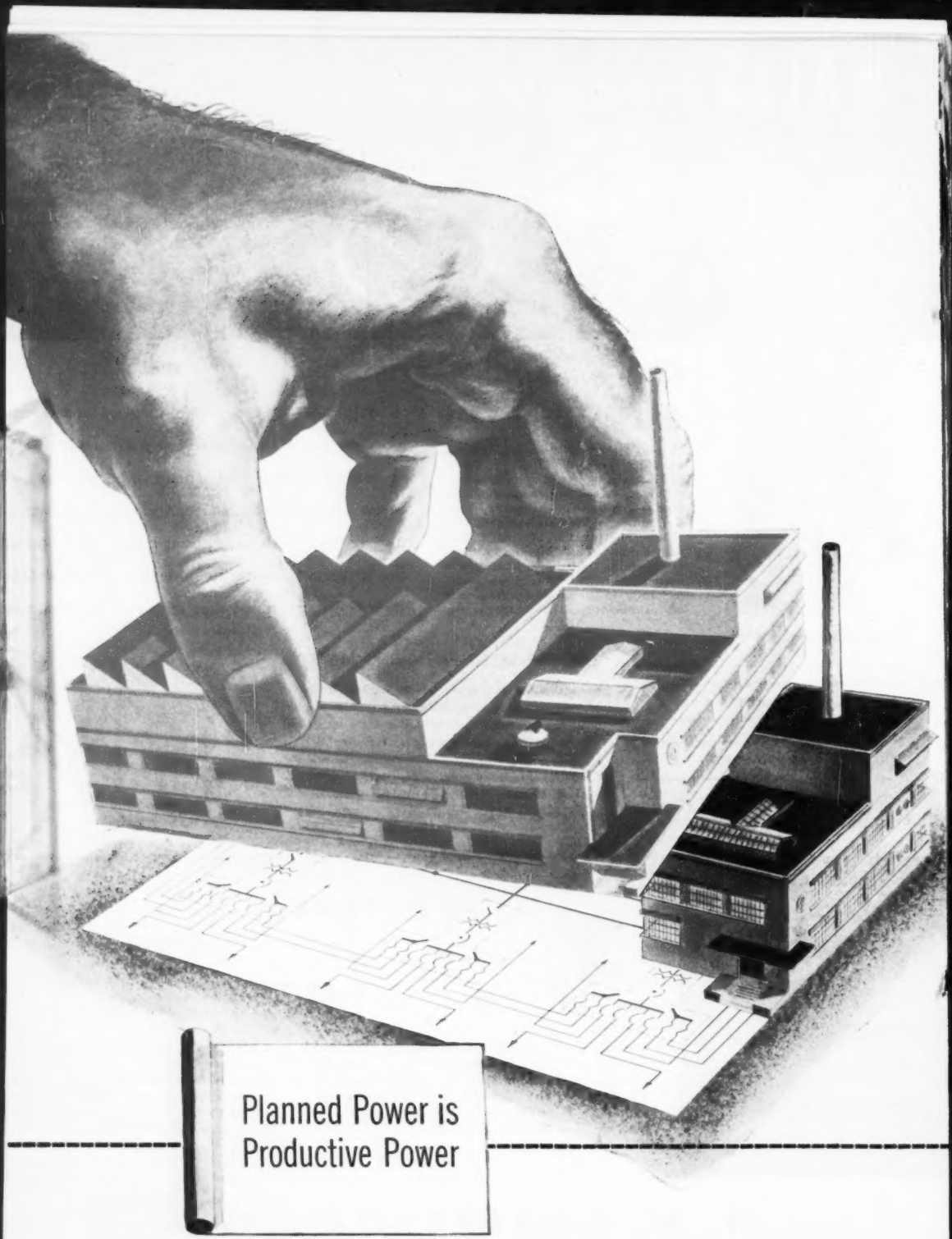
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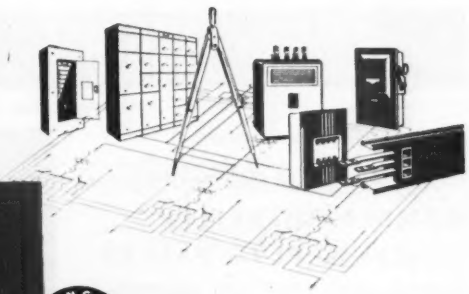

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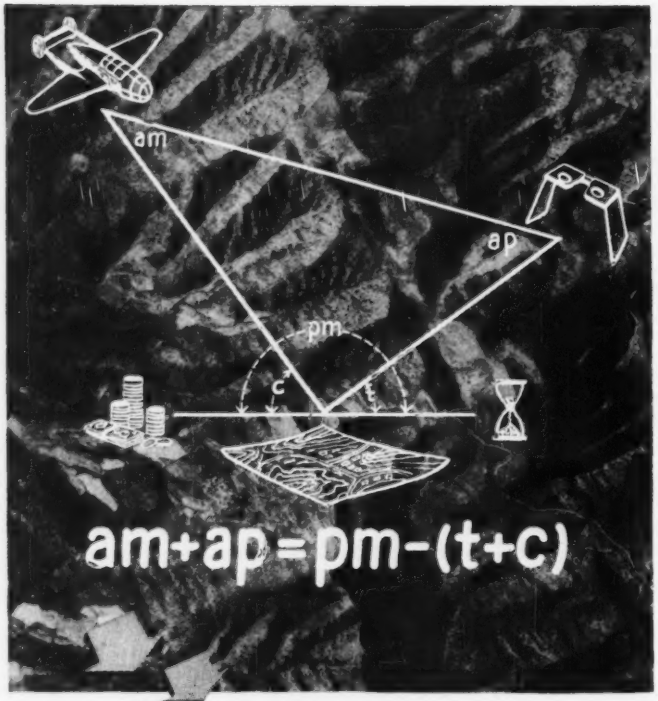

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Valve "B"	33
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Bureau of Reclamation

Frank G. Scussel is new chief of the Resources and Developments Div. of the regional branch of power utilization.

Retirements

Geo. E. Handwerk, Allentown dist., Pennsylvania highways, after 30 years.

Chas. W. Harris, professor emeritus of hydraulic engineering, University of Washington, Seattle, 45 years on faculty.

Harry R. Hall, chief engineer of Washington Suburban Sanitary Commission, 33 years.

Seth M. Gooder, head of Gooder-Henrich Engineering Co., Chicago, after 25 years of shoring, underpinning and moving buildings.

Prevost Hubbard, engineer of research, The Asphalt Institute, for nearly 30 years, retired some time ago, and has been succeeded by **John M. Griffith.**

Resignations

Geo. Swanger, supervising chemist of municipal water works, Shelby, Ohio, to supervise water softening and purification at Bowling Green, Ohio.

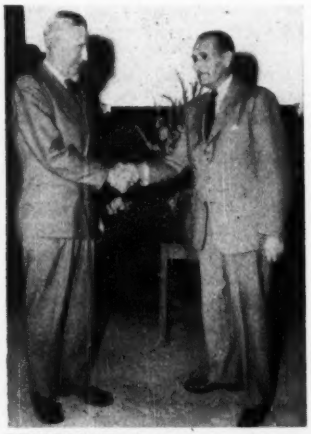
J. L. McNamara, city engineer Juneau, Alaska, to become resident engineer at Haines.

Michael M. Simms, engineer asst. Div. 4, Ohio highways, Ravenna.

N. Y. ENGINEERS' AWARD—Bernard J. Gillroy, N. Y. City Commissioner of Housing and Buildings, on June 6 received the 1951 scroll award of the N. Y. Association of Consulting Engineers in recognition of his contributions during the year to furthering the aims of the association, composed of 40 leading consulting engineering firms of the metropolis. Special tribute was paid to the commissioner for his work as chairman of the N. Y. City Bomb Shelter committee. Commissioner Gillroy, a civil engineer, has been in N. Y. City's service for 25 years.

Honors

Talcott W. Edminster has received the Wm. A. Jump memorial award for exemplary achievement in public administration by a federal employee under 32 years of age. In 1944 he was made acting project supervisor of the Soil Conservation Services research work in Virginia.



LEADERSHIP—of the 42-year old Mississippi Valley Conference of State Highway Departments changes hands as its retiring president, H. E. Surman, engineer of design, Illinois State Highway Dept., left, congratulates newly-elected president P. H. Daniells, assistant chief engineer, Missouri State Highway Department.

Walter Owen Washington, of Brownsville, Tex., a descendent of a cousin of George Washington, has been awarded a certificate of merit for 50 years of outstanding engineering work by the Valley chapter of the Texas Society of Professional Engineers. For the last five years he was senior member of Washington and Ruff, civil engineer, and is now with the Cameron County engineer's office. Mr. Washington is in the center of the above picture with J. E. McAnally, left, and A. Winston, right.

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Finished sizes are stockpiled over a reclaiming tunnel, then rinsed and delivered to bins for loading cars and trucks. Telsmith did all engineering, including detailed drawings, furnished all screens and conveyors and carefully co-ordinated all equipment for smooth, efficient operation. To relieve yourself of technical details and to be sure of satisfactory results, consult Telsmith without obligation. Send for Bulletin 266.

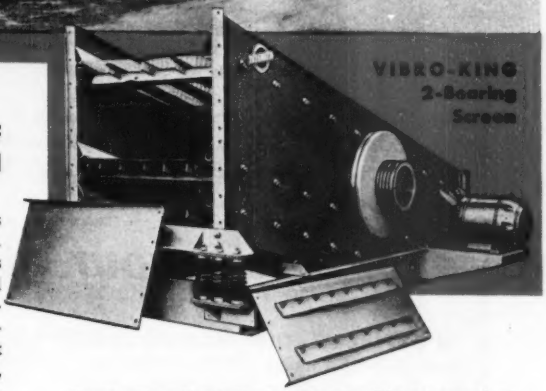
SMITH ENGINEERING WORKS
500 EAST CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

ENGINEERED

VIBRO-KING

For Finished Screening of Medium and Small Sized Aggregate

With its two bearings, the Vibro-King is simpler, more efficient, and upkeep is lower. Telsmith-patented automatic counter-weights assure smooth starting and stopping as well as exceptionally smooth operation. Its circular screening movement is uniform everywhere on the screen cloth, and is constant under any load. Entire vibrating mechanism, including vibrating unit and screen cloth, floats on nests of springs. Welded and reinforced main frame is *horizontal* for rigidity and easy installation. Cable suspension, if desired. Five sizes, 1, 2, or 3 decks.



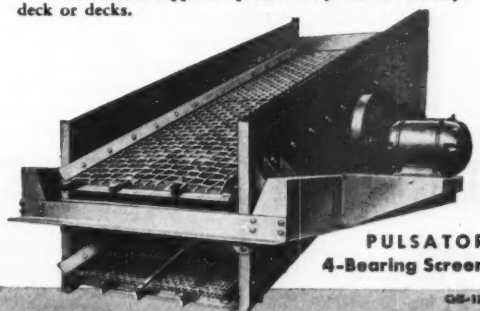
Changing Screen Cloth is Simple and Quick — The upper end of the Vibro-King is readily removable, making it a much easier job to change screen cloth and saving a great deal of time.

Screen Cloth Mounting—At customer's option — screen cloth may be mounted in rubber on steel screen trays; or stretched over steel screen supports—protected by rubber—on any deck or decks.

PULSATOR

For Heavy-Duty Scalping

A four-bearing, heavy-duty vibrator . . . for all kinds of screening, especially scalping, or large sized aggregate . . . Pulsator's circular movement gives uniform, efficient screening on all decks and under heaviest loads. The best alloy steels, the finest anti-friction bearings, protected by both labyrinth and piston ring seals, give longer life and lower upkeep. Eleven sizes, with 1, 2, or 3 decks.



PULSATOR
4-Bearing Screen

CS-12

Cable Address: Telsmithworks, Milwaukee

51 East 42nd St. New York 17, N.Y. · 211 W. Wacker Drive Chicago 6, Ill. · 713 Commercial Trust Bldg. Philadelphia 2, Pa. · 238 Main Street Cambridge 42, Mass. · Bacheck Equip. Co. Milwaukee 3, Wis. · A. N. Wigle, 362 S. Ashburton Rd. Columbus 15, Ohio

Clyde Equipment Co., Portland 9, Ore., & Seattle 4, Wash. • Minco Eng. & Equip. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C. • Blair Equip. Co., Charleston 22, & Clarksburg, W. Va. — Roanoke 7, & Richmond 14, Va. • Wilson-Wagoner-Wilkinson Co., Knoxville 8, & Nashville 8, Tenn.

Important Information

IF you are a producer of products using steel, aluminum or copper, it is vitally important that you know what Controlled Materials Plan forms apply to your industry and how you may obtain them. We think the information on the three basic CMP forms listed below will be helpful.

FORM CMP-4A: For any producer of Class A products who is requested to apply for an authorized production schedule and related allotment by a Claimant Agency or consumer for whom he produces Class A products.

FORM CMP-4B: For any producer of Class B products who is requested by NPA to file an application with the appropriate Industry Division for an authorized production schedule and related allotment.

FORM CMP-4C: For any person requiring an allotment for controlled materials for use in construction.

Further information on Class A and Class B products, as well as applications for CMP authorizations and allotments on these three forms, are available at your local National Production Authority field office or their headquarters in Washington.

We also direct your attention:

TO CMP REGULATION NO. 4 which sets forth the rules under which distributors such as ourselves may make deliveries of controlled materials to their customers.

IT IS IMPORTANT for you to know that whenever you place an ***authorized controlled material order*** with a distributor either orally or by telephone, it must be followed by a written confirmation within 15 days. If a customer fails to comply with this provision, a distributor is required to report the delinquency to the National Production Authority.

WE THEREFORE URGENTLY REQUEST that directly after placing an authorized controlled material order either orally or by telephone with your distributor, you immediately send him a written confirmation. By doing this you will protect yourself and help your distributor and the National Production Authority keep CMP working smoothly.

UNITED STATES STEEL SUPPLY COMPANY

Warehouses and Sales Offices: BALTIMORE · BOSTON · CHICAGO · CLEVELAND · LOS ANGELES · MILWAUKEE · MOLINE, ILL.
NEWARK · PITTSBURGH · PORTLAND, ORE. · SAN FRANCISCO · SEATTLE · ST. LOUIS · TWIN CITY (ST. PAUL)
Sales Offices: INDIANAPOLIS · KANSAS CITY, MO. · PHILADELPHIA · ROCKFORD, ILL. · TOLEDO · TULSA · YOUNGSTOWN

Headquarters Offices: 208 S. La Salle St.—Chicago 4, Ill.

UNITED STATES STEEL

EDUCATION, RESEARCH

SEWAGE PLANT OPERATORS and superintendents from villages and cities throughout Wisconsin went back to school recently at the University of Wisconsin to get the latest information on sedimentation practice, sewage flow measurement, sludge digestion and disposal, and equipment maintenance. Shown at a laboratory class in the hydraulic and sanitary engineering building is a group studying sludge digestion and disposal problems. Left to right, H. N. Kingsbury, of the Committee on Water Pollution of the State Board of Health, on the faculty of the sewage plant short course; Russell Stewart, Gerald W. Lawton, instructor in civil engineering, Harold Martin, Ralph Bahr, Joe Moenssen and A. A. Fryklund. Sponsored by the League of Wisconsin Municipalities and the Conference of Wisconsin Sewage Works Operators, the short course was conducted by the staffs of the University hydraulic and sanitary engineering laboratory, the state laboratory of hygiene, and the State Board of Health.

Harvard and M.I.T. announce joint plan for secondary school science teachers

Harvard University and Massachusetts Institute of Technology have announced plans for a joint five-year program aimed at increasing the number of broadly trained science and mathematics teachers available to secondary schools.

Under the new curriculum, beginning next September, young men and women will be trained for science and mathematics teaching in high schools and junior colleges.

Their courses will lead to the degrees of Bachelor of Science in General Science at M.I.T. and Master of Arts in Teaching at nearby Harvard University.

The undergraduate phase of the project is largely at M.I.T., although some Harvard courses may be taken as early as the third year. Thereafter, students will take courses at both institutions.

During the fifth year, students will teach part-time at local high schools, under the direction of the faculty of the Harvard School of Education.

The joint program has been undertaken in the hope that "more young people of outstanding ability may be attracted into the teaching profession," according to Prof. John T. Rule, in charge of M.I.T.'s courses in general science and engineering.

Qualified graduates of high and preparatory schools will be accepted for the project. Their first two years will include the same program as taken by all other M.I.T. students, which comprises general education courses in the humanities and social sciences in addition to basic work in science and mathematics.

After receiving a solid foundation in mathematics, physics, chemistry and biology, each student will further emphasize one of these major fields. At the same time, he will be able to take courses in other scientific fields, under a flexible program.

The student's professional studies at the Harvard Graduate School of Education, beginning in the third

(Continued on next page)

USE THE WORLD'S BEST at NO EXTRA COST

1. CASTELL DRAWING 9000
2. CASTELL LOCKTITE REFILL HOLDERS 9400—Black or Colored
3. CASTELL IMPORTED REFILL LEADS 9030

These encompass every mood of genius for drawing, drafting, tracing, sketching, blueprinting, etc.

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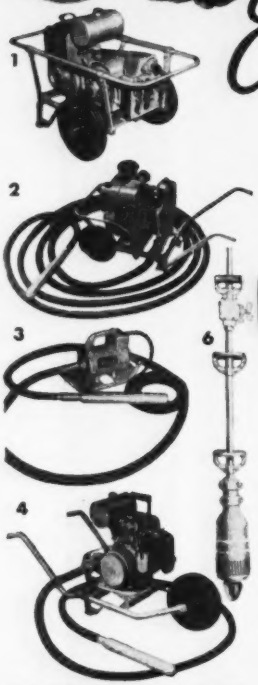
AW FABER-CASTELL PENCIL COMPANY INC. NEWARK, N.J.

Eliminates

MANUAL VIBRATING of concrete at side forms. Saves the better part of two man's labor. Mounts on any modern finisher, Jackson Vibratory Paving Tube or Spreader. Employs two or more vibratory units that are simultaneously lowered into or raised from the concrete by the finisher operator. Units operate close to forms or reinforcement without fouling — ride over any obstruction encountered. Will not penetrate into sub-base. Assures thorough compaction regardless of speed of finisher or spreader . . no spots missed. Long-wearing, trouble-free.



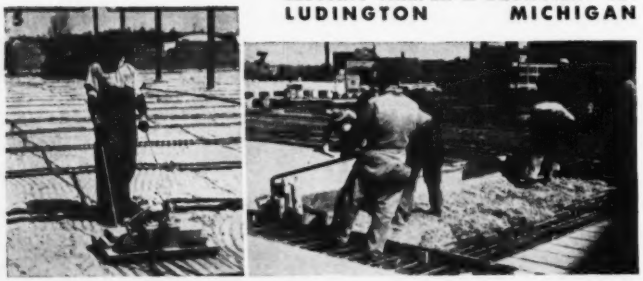
JACKSON

IDEAL VIBRATORS FOR EVERY TYPE OF JOB

1. Power Plant used with Compactor and Screed, 1.25 KVA. Others of 2.5 and 5 KVA capacity — all produce both single and 3-phase 110 v. 60 cycle AC and have generators requiring no maintenance or adjustment. 2. Hydraulic vibrator with time-saving 50' reach. 3. Powerful, easy-to-handle electric vibrator — shafts up to 28'. 4. Finest of engine-driven flexible-shaft vibrators. 5. Revolutionary, fast, granular soil vibratory compactor. 6. Heavy-duty mass construction vibrator — a "must" on dams, etc. 7. Electric vibratory screed — most productive of all screeds for municipal paving, highway widening, etc. Write for "Pocket Guide" describing the entire line.

FOR RENT OR SALE AT JACKSON DISTRIBUTORS

ELECTRIC TAMPER & EQUIPMENT CO.
LUDINGTON MICHIGAN



year, will train him in the history and philosophy of education, education psychology and measurements, and the teaching of mathematics and science.

Most of the work during the first two years at M.I.T. coincides with that of the regular undergraduate programs. Then students will have a chance to decide whether they wish to continue on toward a teaching career or branch off into other fields, at M.I.T. or elsewhere. Continuance beyond the third year of the program will be limited to those who show promise for a teaching career.

Brief news of education and research

• **Liberal Arts**—At the University of Pittsburgh a new cooperative program enables students to gain training in both liberal arts and engineering. The plan covers five years and leads to a bachelor of science degree or a bachelor of science degree in engineering.

• **Air and water pollution**—The research division of N. Y. University college of engineering has organized a section on air and water pollution research. It is a panel consisting of these staff specialists: G. P. Edwards, Gardner Emmons, Anthony Lanza, F. D. Maslan, and G. H. Strom.

• **Special summer programs**—A couple of dozen special technical and professional programs will be added to the summer session at M.I.T. They are expected to attract about 2,500 specialized students besides about one-third of the regular graduate and undergraduate students. Frederick G. Fassett will direct.

Aerial surveying—A course to show the use of photogrammetric procedures in solving highway engineering problems was given recently by the U. S. Bureau of Public Roads and the California Division of Highways for highway engineers from Arizona, California, and Nevada in Sacramento, Calif. Instruction was by William T. Pryor of the Bureal of Public Roads. The course consisted of a week of lectures and a second week of actual highway location with aerial photographs and stereoscopes.

Public works lab—Albany is to be the site for a $450,000 New York State Public Works Department laboratory for which funds were first approved by the state in 1945. The money was reappropriated at this year's legislative session. The laboratory will be used to test construction materials used by the department.

600,000 yds. of granite
moved on mountain trails by 3 TOURNAROCKERS

With power on front wheels, Tournarocker backs safely to edge of fill . . . dumps load at touch of electric switch. Including spotting time, total 2400' cycle averages 6.25 min. (2.15 min. to load, 1.95 min. to haul 1200', 0.3 min. on dump, 1.85 min. to return 1200').

Tournarocker - Trademark C150-b

To eliminate the treacherous "Camel's Hump" on U.S. Highway 10 between St. Regis and Cabin City, Montana, Roy L. Bair Co., of Spokane, Washington, is using 3 rear-dump, 16-ton C Tournarockers to haul 600,000 of an estimated 1,200,000 cubic yards, under conditions that are really rugged.

SHOVEL LOADED IN 2 MIN. 9 SEC. Material is mostly tough clay-seamed shale, with a large percentage of granite boulders and some gravel. Tournarockers are loaded in 5 to 6 passes by a 2½-yd. shovel in an average of 2.15 minutes. Despite high voids, loads average 10 to 11 pay yards each.

Tournarockers are constantly working in restricted mountainside cuts, hauling at 3900' altitudes along steep canyon sidewall roads, and dumping over sheer banks. Always narrow and winding, the clay-surfaced trails are often made slippery by heavy rains.

FLEET OUTPUT 252 PAY YDS. HOURLY. Under these tough conditions, the 3 Tournarockers deliver an average of 25 heaped loads hourly on 2400' cycles — a total of 252 pay yards an hour, or approximately 363 tons of the 2880-lb. material.

These production figures from the "Camel's Hump" job are typical of field evidence coming in daily, showing how Tournarockers are providing dirtmovers all over the country with lowest cost per ton hauled. Your LeTourneau Distributor has job-proved facts and figures on the *NEW* 18-ton "C" that will interest you. See him today!

Tournarocker makes 90° turn within 14' radius, moves quickly into load position under shovel.

Low entry front ram, plus big 12'4" x 6' cab opening, assists shovel-loading of big-chunk rock.

Carrying big chunk rock, 1150 h.p. C Tournarocker hauls 1200' over winding road to dump.

R. G. LeTOURNEAU, INC.

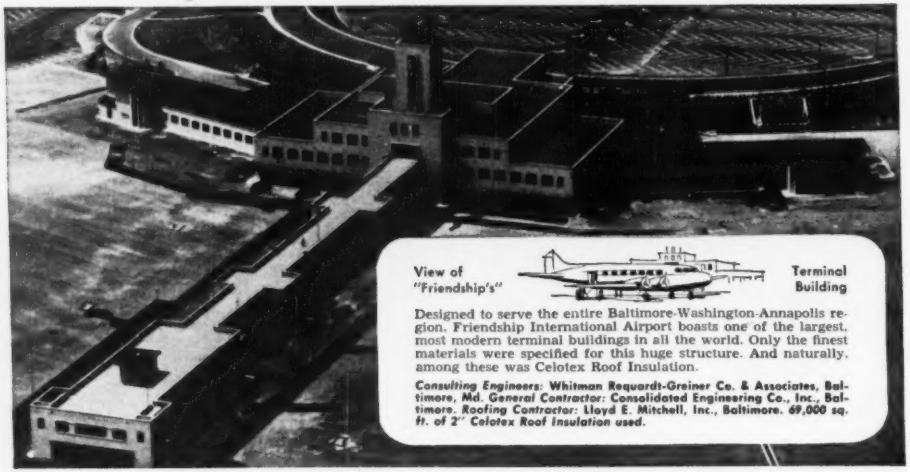
PEORIA, ILLINOIS

HIGH-SPEED, RUBBER-TIRED HAULING • EXCAVATING • LIFTING EQUIPMENT

Baltimore's Giant New

Friendship International Airport

Specified CELOTEX ROOF INSULATION



View of "Friendship's" Terminal Building

Designed to serve the entire Baltimore-Washington-Annapolis region, Friendship International Airport boasts one of the largest, most modern terminal buildings in all the world. Only the finest materials were specified for this huge structure. And naturally, among these was Celotex Roof Insulation.

Consulting Engineers: **Whitman Requardt-Greiner Co. & Associates, Baltimore, Md.** ***General Contractor:*** **Consolidated Engineering Co., Inc., Baltimore.** ***Roofing Contractor:*** **Lloyd E. Mitchell, Inc., Baltimore. 69,000 sq. ft. of 2" Celotex Roof Insulation used.**

Actual performance on the job . . . over a long period of years. That's the one, the *only* true test of roof insulation! And no other brand can challenge the JOB-PROVED record set by Celotex Roof Insulation. A record for top quality, long service, true economy . . . through *over a quarter century of actual use* in all types of installations, all over the country!

Celotex Roof Insulation is low in initial cost, easy to handle, exceptionally durable. Helps assure a superior, long-lasting roof that requires less maintenance. Preferred by roofers because it resists damage from job handling—is quickly applied.

So don't take chances with unproved materials. For complete satisfaction, always specify genuine Celotex Roof Insulation! There's a type to meet every job requirement. Write today for application specifications. The Celotex Corporation, Dept. ENR-61, Chicago 3, Illinois.

Only Celotex Roof Insulation offers all these advantages

1. **High Insulating Efficiency** means greater comfort the year 'round, plus reduced heating and air conditioning costs.
2. **Low in Cost**: both initial and applied.
3. **Quick to Apply**: installed with less time, work and cost because it's light and easy to handle. Strong and rigid—doesn't have to be "babied" on the job.
4. **Provides Excellent Bond** for hot mopped roofing felts of either the asphalt or coal tar pitch type.
5. **Durable, Long-Lasting.** It is the *only* roof insulation made of long, tough Louisiana cane fibres—and protected by the *exclusive* (patented) Ferox® Process against dry rot, fungus and termites.

There's a type of Celotex Roof Insulation for every job

REGULAR—for efficient insulation at lowest cost.

PRESEAL—with asphalt coating for extra moisture protection. Has a conductivity "k" of 0.33 Btu before coating.

PRESEAL "30"—with asphalt coating; special low density core; guaranteed 0.30 conductance before coating for nominal 1" thick material.

VAPOR-SEAL—with asphalt coating; guaranteed 0.30 Btu conductance before coating for nominal 1" thick material. Patented recessed edges form channels which help prevent roof blisters by equalizing pressure of air trapped under roofing.

It pays to specify genuine CELOTEX® *roof insulation*

THE CELOTEX CORPORATION • CHICAGO 3, ILLINOIS

MEETINGS

The District 10 Council of the American Society of Civil Engineers was recently held in Charlotte, N. C. Arrangements were made by Col. J. Norman Pease, vice-chairman, and Channing B. Brown, secretary-treasurer. Delegates from all except one member section in District 10 were present at the meeting. Also present were William Roy Glidden, vice-president Zone II of the American Society of Civil Engineers, and Edmund Friedman, director of District 10.

John F. Tribble, past president of the Alabama Section, A.S.C.E., was selected chairman for the 1952 Council meeting and in taking over his duties he extended the invitation of the Alabama Local Section as the host section for the council meeting next year.

Henry W. Osborne has been elected president of the Engineering Society of Buffalo, N. Y. Other officers: Vice-president, Joseph M. Gentile; treasurer, Joseph E. Tisdel, and secretary, Robert K. McKeegan, Jr. Directors, Herbert D. Clay, Bruce W. Ellis, William S. Petrillo and Ogden C. Mills.

Harold S. Sizer is president of the Providence, R. I., Engineering Society. Other officers: W. George Parks, vice-president; James A. Malcolm, secretary; and Carleton H. Parker, treasurer. Counselors for three years: W. Donald Coulter, John E. Harvey, Carl F. Haussler and Walker Mason.

New officers of the Pacific Northwest Section, AWWA, W. C. Wilmot, McMinnville, Ore., chairman; A. S. G. Musgrave, Victoria, B. C., vice-chairman; O. P. Newman, Boise, Idaho, secretary; Fred Merryfield, Corvallis, Ore., national director; Jerry Allen, Seattle, Wash., and W. H. Berkeley, Lewiston, Idaho, executive members.

Robt. E. Williams has been elected president of the Street Maintenance and Sanitation Association of Ohio; C. E. Brokaw, vice-president, and Alfred Peterson, secretary-treasurer.

W. W. Tinniswood of Moscow, Idaho, has been elected president of Pacific Northwest Sewage Works Association. C. M. Everts, Jr., Oregon State Board of Health, Portland, is vice-president; W. P. Hughes, city engineer of Lewiston, Idaho, director; Robert Sylvester, civil engineering dept. of University of Washington, Seattle, secretary-treasurer.

Harold W. Short, contract engineer for Dominion Bridge Co., Ltd., has been elected president of the Canadian Institute of Steel Construction.

L. E. McClung, Washington, D. C., has been elected president of the Maryland-Delaware Water and Sewerage Association. Other officers, Victor W. Faivre, Wilmington, Del., vice-president; Roy Ditter, Baltimore, Md., second vice-president, and W. McLean Bingley, Baltimore, secretary-treasurer. J. D. Carpenter is president of the Pennsylvania Society of Professional Engineers; vice-presidents, E. K. Nicholson, Donald Peters, G. G. Jacobsky, and Arthur Hewitt.

Dr. T. J. Lafreniere, chief sanitary engineer of the Quebec ministry of health, was elected chairman of the Canadian section, AWWA and W. D. Hurst, of Winnipeg, vice-chairman.

New officers of the Metropolitan section of the A.S.C.E. are Maurice N. Quade, president, succeeding W. S. LaLonde; F. C. Mirgain, vice-president; C. E. Trout, treasurer (re-elected); Nomer Gray, I. F. Ashforth and A. J. Fox, Jr., directors. Alfred Hedefine is secretary.

The Engineers-in-Industry group of the Ohio Society of Professional Engineers recently elected the following new officers: Arthur B. Heiberg, Akron, chairman; Robert E. Allen, Dayton, Thomas F. Hindman, Lakewood, E. V. Newman, Toledo, and W. E. Ault, Youngstown, vice chairmen; and Wallace T. Adams, Middletown, secretary-treasurer.

CALENDAR

American Congress on Surveying and Mapping, annual meeting, Hotel Shoreham, Washington, D. C., June 18-20.

American Society for Testing Materials, Chalfonte-Haddon Hall, Atlantic City, N. J., June 18-22.

Ohio Sewage and Industrial Wastes Treatment Conference, Nell House, Columbus, Ohio, June 20-22.

Western Association of State Highway Officials, Fairmont Hotel, San Francisco, Calif., June 25-28.

The American Society for Engineering Education, Michigan State College, East Lansing, Mich., June 25-29.

National Constructors Association, Labor and Executive committees, Edgewater Beach Hotel, Chicago, Ill., July 11-12.

Bureau of Reclamation, annual programming conference, Wenatchee, Wash., July 23 (tentative date).

National Conference on Prestressed Concrete, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 14-16.

SYMONS SHORES FIRST CHOICE

because . . . .

★ **LIGHTER**
10 to 15 lbs.

★ **SAFER**
Have greater load capacity

★ **FASTER**
Work like hydraulic

★ **COMPLETE**
Scab, Tee-head, and Extension allow for every type of use

Try these shores on your next job. See for yourself . . . you'll be convinced that Symons Shores are FIRST CHOICE because of the savings they will mean to you in time and money.

Symons Column Clamps Save Money on Every Job

★ **SIMPLE CONSTRUCTION**
Only two units—both alike, no loose parts

★ **SIMPLE TO APPLY**
Require only a hammer, and are completely adjustable

★ **SQUARE COLUMNS**
Automatically and accurately

These simple compact units put tidy savings in your pocket. Their function is clear—to do a good job, at a low cost, with complete accuracy. That's precisely what they do.

RENTED WITH PURCHASE OPTION

Symons Shores, Column Clamps and Forms can be rented with purchase option. Paid rentals apply on purchase price.

Symons COLUMN CLAMPS FORMS SHORES

SYMONS CLAMP & MFG. CO.
4265 West Diversey Avenue, Chicago 39, Ill.

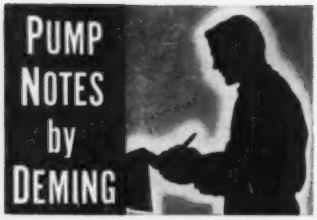
Please send information on items checked.

☐ Column Clamps ☐ Bar Ties and Tie Chairs
☐ Shores ☐ Forms

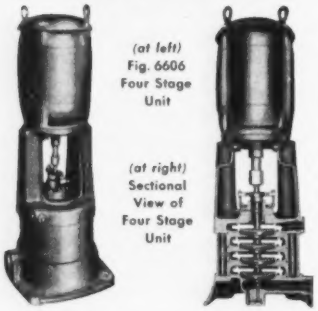
Name_____

Address_____

City_____ Zone____ State_____



New "Multi-Stage"
HIGH PRESSURE
Centrifugal Pumps



(at left) Fig. 6606 Four Stage Unit

(at right) Sectional View of Four Stage Unit

● These new pumps are designed for a wide range of industrial applications where the liquids handled are non-corrosive to iron and bronze. Also efficient for boiler feed service where temperatures do not exceed 250°F.

Pumps are furnished in 2, 3, 4, or 5-stage construction. All have 1½" suction and 1" discharge openings.

Capacities range from 10 to 45 G. P. M. for corresponding heads up to 400 ft., and with 2, 3, and 5 H.P. motors operating at 3500 R. P. M. Vertical type motor has standard NEMA type "C" mounting flange.

Stainless steel pump shaft is coupled to motor shaft with compression sleeve type coupling.

Further details, dimensions, and performance ratings are available in BULLETIN NO. 6606.

THE DEMING COMPANY
536 Broadway • Salem, Ohio

SPECIFY DEMING PUMPS

OBITUARY

Charles Henry Davis, 86, of Bass River, Cape Cos, Mass., a retired civil engineer often called the father of the good roads movement, died in New York City, June 3. In 1912 with former U. S. Senator Coleman du Pont, he founded the National Highway Association to bring about the building and maintenance of a system of national highways by the U.S. government. He was an 1887 graduate of the Columbia University School of Mines. In 1911 he founded at Columbia the first school of highway engineering. In 1936 he gave to the University of Maryland half a million dollars for an engineering library and a building for it.

Bernard Britton, 50, of Fayetteville, N. C., senior resident engineer for the North Carolina Highway Department, with which he had been connected for 30 years, died May 28. He served as district engineer in Pender and Columbus counties before his transfer three years ago to the office at Fayetteville. He was a graduate of N. C. State College.

Palmer B. Reeves, 56, for 22 years assistant superintendent of bridges and buildings for the New Haven Railroad and for the last seven years supervisor of structure and steel for the Metropolitan Transit Authority, Boston, Mass., died May 27.

Capt. George Frederick Ritchie, 71, retired civil engineer, died at Toronto, Ont., on May 28. He served overseas in the First World War, was associated with the Toronto Transportation Commission, Canadian Pacific Railway, and Canadian Northern Railway before retiring a few years ago.

Henry J. Gross, 83, chairman of the board of Anglin-Norcross Corp. Ltd., widely known in construction circles in Canada, died in Montreal May 28. He was associated with the construction of the Chateau Frontenac, Quebec, the Royal York Hotel and the Canadian Bank of Commerce in Toronto, the Supreme Court building in Ottawa, and the International Aviation building in Montreal.

Nehemiah Ordway Whitford, 62, for 26 years land engineer for the New Hampshire Department of Public Works and Highways, died at Warner, N. H., May 28.

Lionel G. Connor, 51, engineer and owner of the Connor Engineering and Manufacturing Co., Hyattsville, Md., died May 24 in Washington, D. C. Mr. Connor attended Southeastern University in Washington. A Navy engineer in World War I, he went to Washington in 1920 as an engineering architect and estimator for the George Washington Stone Co. and later was with the Phelps Stone Co.

John A. McEachern, 73, pioneer contractor of Seattle, Wash., and chairman of the board of the General Construction Co., died May 24. Honorary pallbearers included such nationally known contractors as Henry J. and Edgar Kaiser, G. J. Shea and H. W. Morrison, with whom he had worked on large construction projects.

John Reimann, 62, engineer of construction and surveys for the Richmond, Fredericksburg and Potomac R.R., died at Richmond, Va., May 10. He had been with the RF&P since 1924, going to that company from the Bureau of Valuation of the Interstate Commerce Commission.

C. M. Parish, 50, died May 26, in Milan, Tenn. He had been an employee of the Tennessee Department of Highways and Public Works as an engineer in various capacities for the last 25 years. His most recent assignment was that of office engineer in the fourth division office Jackson.

Russell M. King, 57, head of the reproduction section of the Navy's Bureau of Yards and Docks, died May 19 in Arlington, Va. He started his government work in 1910 and last year received a Navy 40-year service award. In September, 1946, Mr. King received the Civilian Meritorious Award for his outstanding work during World War II.

Harold Payson, 67, retired chief engineer of the Reconstruction Finance Corporation, died May 26 in Washington, D. C. He had retired in 1948. He was graduated from the Columbia University School of Engineering.

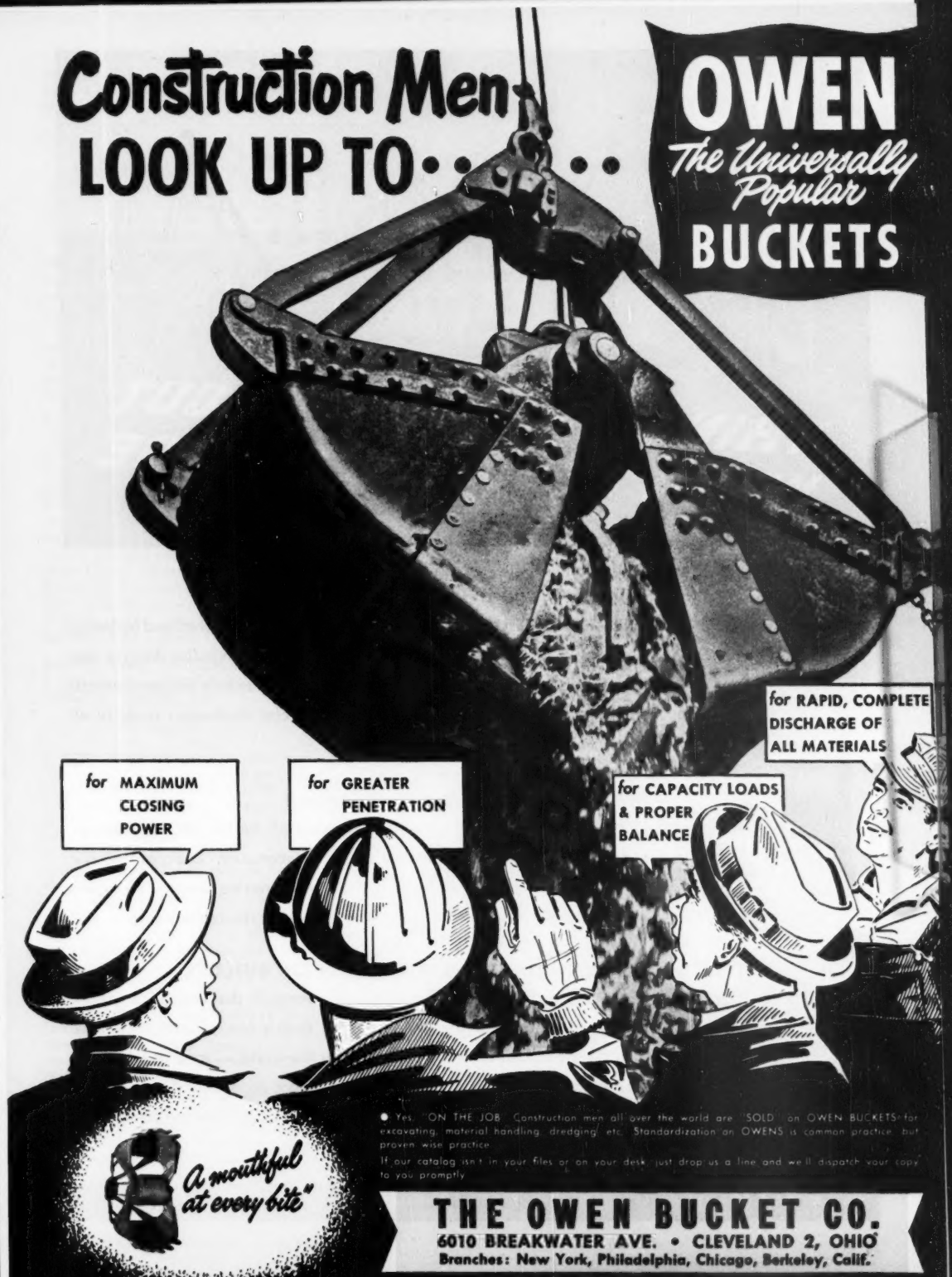
William A. Poppe, 46, civil engineer and Patent Office official, died May 25 in Washington, D. C. He was acting chief, Division 52, of the Patent Office. He received an engineering degree from George Washington University.

Arthur D. Kropne, 54, a civil engineer and surveyor, died May 25, in Milwaukee, Wis. He was a graduate of Marquette University. From 1935 to 1942 he worked for the Coast Guard and Navy in Washington, D. C. From 1943 to 1945 he was a sanitary

(Continued on page 75)

Construction Men LOOK UP TO . . . . .

OWEN
The Universally Popular BUCKETS


for MAXIMUM CLOSING POWER
for GREATER PENETRATION
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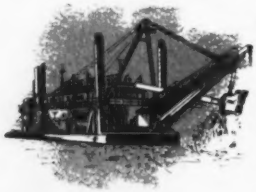

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engineer at Rhinelander, Wis., for the Wisconsin State Board of Health. Since 1945, he was in business for himself.

Frank W. Reynolds, 83, for many years president of Lockwood-Greene & Co., Engineers, died on May 27 at Winchester, Mass. He had ben identified with the design, construction and development of industrial plants.

Harry Griffiths, 68, of Raleigh, N. C., engineer for the North Carolina Highway Commission, who helped draft plans for hundreds of miles of North Carolina roads, died May 24. He was first employed by the N. C. Highway Department in 1921 and later set up private practice at Asheville. He returned to the department in 1938.

Paul C. Van Zandt, 73, internationally-known cement engineer who retired six years ago, died May 26 in River Forest, Ill. He was chief engineer for Asano Cement Co., with offices in Tokyo, from 1918 to 1923. He was regarded as one of the founders of Japan's cement industry and helped to build many cement plants in the Orient. Returning to this country, he became chief engineer for the Ideal Cement Co., in Denver. In 1931 he became vice-president of the Universal Atlas Cement Co., Chicago.

James L. Brady, 51, Lansdowne, Pa., a civil engineer for the Bell Telephone Co., died May 26.

• **Survey of structures**—The state of Washington has decided not to accept a federal offer of $20,925,000 in matching funds to build bomb shelters, and instead will survey existing structures with a view toward improving them so they will withstand shock, Gov. Arthur B. Langlie has announced. And the Niagara County Chapter of the N. Y. Society of Professional Engineers has accepted the responsibility of surveying structures in the Niagara Falls area which can be converted into emergency hospitals in the event of air raids.

• **To forecast flood heights**—Frank B. Harkness, of Louisville, Ky., has received a patent on a device which computes the crest a river will reach in a given area, based on rainfall upstream. Working on a slide-rule principle, it saves time and complicated mathematical calculations. Harkness has worked for the Army Corps of Engineers for 35 years. It is said that the corps is considering use of his device to figure how high a floodwall should be built in various areas.

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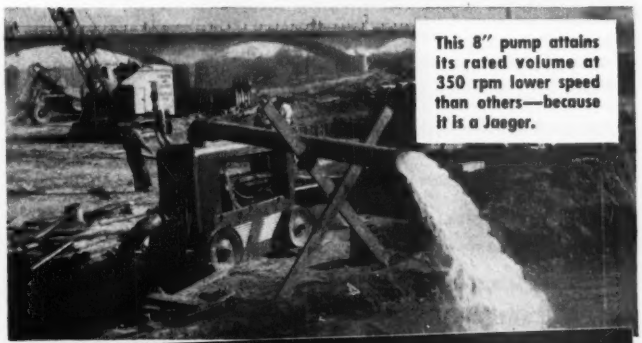

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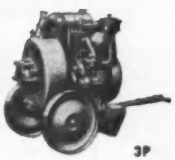

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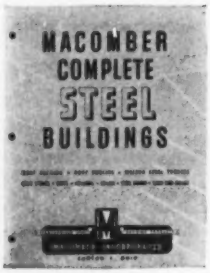

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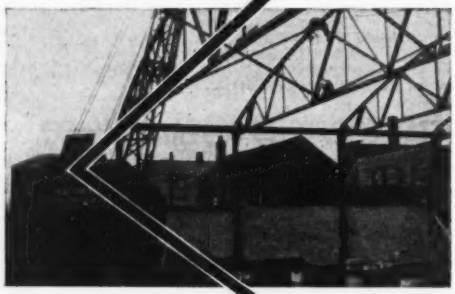

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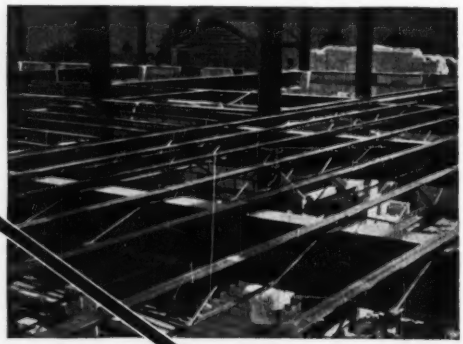

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LABOR

High courts, state limit union powers

In separate actions last week, the U. S. Supreme Court, the Kentucky Appellate Court and the Texas state legislature struck serious blows at construction labor union practices.

The actions:

The Supreme court cleared away much of the disagreement over picketing and its effects by declaring that it is a secondary boycott and an unfair labor practice for employees of one contractor to refuse to work alongside non-union help of another contractor.

The Kentucky court ruled that a union wage contract at Wolf Creek Dam was binding until the job is completed—even though completion will take longer than the original period of the contract;

The Texas legislature passed a new law that makes labor unions that "conspire to violate the state's 'right to work' amendment" subject to anti-trust law penalties.

• **High court action**—Most important was the action of the U. S. Supreme Court, clearing confusion that had involved the National Labor Relations Board and its general counsel, and various sections of the U. S. courts.

In a series of four decisions, the high court backed up NLRB in interpreting Section 8b4A of the Taft-Hartley Act to say that refusal to work alongside non-union employees is a secondary boycott and unfair practice.

• **The cases**—These were the matters on which the court based its construction decisions:

1. Doose & Lintner, a commercial building contractor in Denver, had awarded a subcontract for electrical work to a non-union employer. AFL plumbers and electricians walked off the job, and the Denver Building and Construction Trades Council picketed the job as "unfair". A federal district court refused to grant an injunction (on the ground that the dispute did not affect interstate commerce). NLRB found the unions guilty, but its decision was appealed, first to the Circuit Court of Appeals (which held that the dispute was a primary action against the contractor and thus not a secondary boycott), and finally to the Supreme Court.

2. Watson Specialty Stores, Chattanooga. The Supreme Court majority agreed with the Sixth Circuit at Cincinnati, and NLRB, that it was a secondary boycott when members of the Carpenters union walked off a house renovation job. Their grievance: Non-union employees of Watson installed wall and floor coverings.

3. Giorgi Construction Co., Port Chester, N. Y. Giorgi let a $325 subcontract for electrical work to a non-union contractor on a $15,200 dwelling in Greenwich, Conn. AFL electricians picketed the job to keep union carpenters off the job and force employment of a union subcontractor. The court agreed with NLRB and lower courts that this was an unlawful secondary boycott.

In another interpretation of the same section—involving a Louisiana rice mill, where a picket line seeking bargaining rights kept union truckmen from entering—justices said it is not an unfair practice and not a secondary boycott when primary picketing has the effect of keeping employees of another firm from the picketed premises. Since the court found no evidence of concerted action by the truckers against the employer, it said no secondary boycott existed.

• **Kentucky holds contract**—The Wolf Creek Dam dispute involved a contract signed in 1946 between the Jones-Wright Co., contractor, and a local of the AFL operating engineers.

Court records showed that the company, before obtaining the $18,000,000 contract from the U. S. government, had agreed with the union for wages that would "continue in effect for duration of this contract, which is estimated to take 1,000 days, or until 1949." The job took longer than expected, and in July, 1949, the union called a strike for higher wages.

The court held that the contract was binding until the job is finished.

• **Texas gets tough**—Texas legislators put teeth into the state's 1947 "right to work" law with a new measure that declares violations of the law are to be considered a conspiracy in restraint of trade. A court can fix fines of $50 to $1,500 a day on conviction.

The 1947 law prohibits requiring membership in labor organizations as a requisite for obtaining a job. Union leaders bitterly opposed both the original law and the amendments.

Auto wage decision effect seen small

The Wage Stabilization Board's resolution last week approving wage increases based on increased productivity is very limited, and observers think it should have little or no application to construction.

The WSB simply authorized its staff to approve the General Motors 4-cent "annual improvement" increase and any others that meet these conditions:

1. The increase must be based on a contract or plan in effect before the wage-price freeze of Jan. 25;

2. The employer must apply to WSB for approval and must certify that the increase will not be used as a basis for seeking a price increase.

A formal policy on productivity increases is due to be announced later. It will cover limitations on the amount of increase, and may require the employer to give evidence of increase productivity.

Another point which WSB considered significant in the General Motors matter, was the five-year no-strike agreement, and the freedom that the CIO auto workers gave management to institute cost-saving practices.

Few, if any, construction contracts provide for "productivity increases," or give contractors a free hand on equipment and methods.

In any event, any special policy for construction will be developed by the new Construction Industry Stabilization Commission, an arm of WSB (ENR June 7, p. 24). CISC might justify some kind of wage increase in lieu of productivity increases. There is precedent for this on the War Labor Board, when transportation workers were allowed wage rises above the "little steel" formula, in lieu of overtime after 40 hours.

Labor groups complete assignments for defense

Organized labor has completed its assignment of representatives to defense agencies—a final outcome of its demand for stronger representation at the policy-making level of the defense effort (ENR May 17, p. 68).

Construction union leaders so named include:

Joseph D. Keenan, secretary-treasurer of the AFL Building and Construction Trades Department, named assistant administrator of the Defense Production Authority;

David J. McDonald, secretary-treasurer of the CIO United Steelworkers of America, named assistant to the administrator, Economic Stabilization Agency;

Harry C. Bates, president of the AFL bricklayers in Washington, D. C., named a member of the Wage Stabilization Board;

Daniel W. Tracy, AFL electrical workers, named a member of the ODM Labor-Management Manpower Policy Committee.

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Labor briefs . . .

• **Peace agreement**—Contractors and building trades representatives in the Binghamton, N. Y. area (3,100 workers, 25 contractors) have signed a master agreement providing wage increases (based on average hourly wages in Albany, Rochester, Schenectady, Syracuse and Utica) and machinery to prevent work stoppages (through a six-man labor-management committee on jurisdictional disputes). Three months of negotiation went into the agreement.

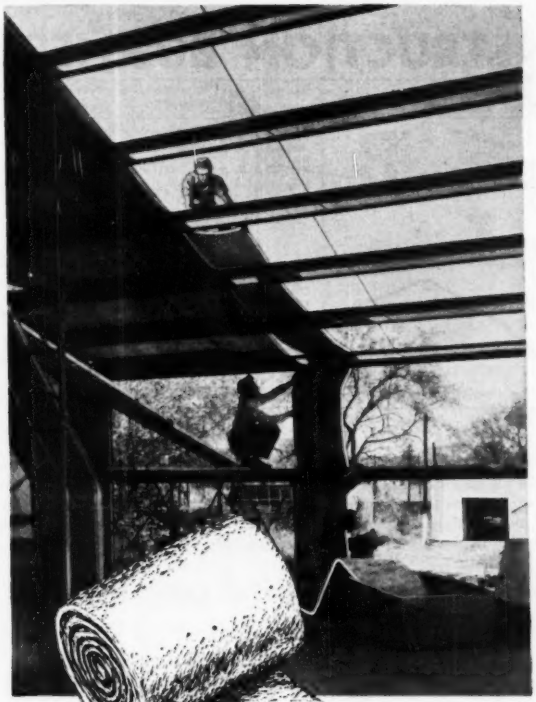
• **Need bricklayers?** — Contractors in the St. Louis metropolitan area say they need about 500 additional bricklayers—and there are plenty of bricklayers available from outside areas, but they want as much as $4 an hour straight pay with double time for Saturdays. Reports of the above-scale wages ($3 an hour plus 3% vacation allowance is the official scale) being paid by some contractors have brought a flood of applications, local builders are reporting.

• **Carpenters win**—Striking carpenters at Sioux Falls, S. D. are back at work, having won their full demands from the Sioux Builders Association (ENR June 7, p. 78). Carpenters got an immediate 3½-cent hourly wage increase (bring scale to 2.03¼ hourly) and the promise of 11½ cents more, if WSB approves.

• **No shortage soon**—There's a current shortage of building tradesmen in the Minneapolis-St. Paul area, but contractors think that won't last long, in view of shrinking construction business. Cutdown in commercial building and private homebuilding promises to hit hard by midsummer, contractors say.

• **Attack no-strike law**—Action by the Missouri state attorney general has put before the state supreme court an attack on the state's King-Thompson Act, which prohibits strikes and lockouts in public utilities. The controversy started when the attorney general, acting on his opinion that the law conflicted with federal statutes, directed the state comptroller to withhold salaries and expenses of the state board of mediation—which administers the act. The board brought suit to force payment.

• **Milwaukee raises**—As of June 1, carpenters in the Milwaukee area began to receive $2.69 per hour (a 29-cent increase), and bricklayers in the same area got $2.97 an hour (a 32-cent increase).



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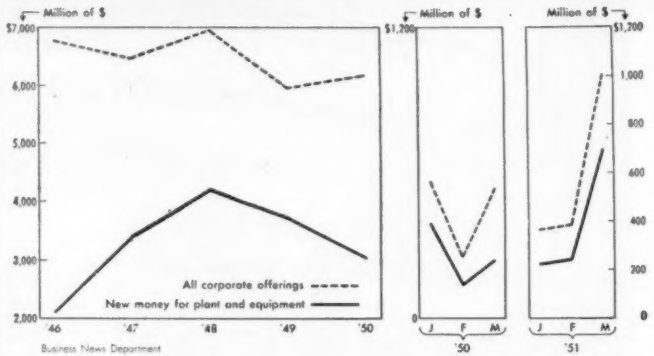
CONSTRUCTION BUSINESS



A SUDDEN SPURT—New capital for plant and equipment has narrowed the gap between itself and all corporate issues as the first quarter of 1951 marks a return to the postwar high of 1948 for all corporate offerings, and promises a new high of its own in the area of new building for corporate purposes. Money for construction this year will come from the stock market on a scale unequaled since 1948.

Prospects for new capital soar in 1951

It appears that 1951 is going to be a bigger year for flotation of new money-raising securities by private industry than the record postwar year of 1948. And a larger portion of this new money will go into new plant and equipment than in any previous year since the end of World War II.

According to estimates based on first-quarter reports of the Securities and Exchange Commission, new issues in 1948 for corporate purposes of both common and preferred stocks and corporate bonds amounted to $6.95 billion. Of this, $4.2 billion went into new plant and equipment.

But this year, it begins to appear that corporate flotations of common stocks and other money-raising issues may exceed $7 billion, with nearly 75%—or $5.3 billion—for purposes of construction and new equipment.

• **Depends on market**—A week ago, ENGINEERING NEWS-RECORD reported a rise of more than 300% in industrial buildings (ENR June 7, p. 80), for the first 23 weeks of 1951 as compared to the first 22 weeks of 1950. Whether or not this demand for new building money will push issuance of industrial stocks even higher will depend on a fluctuating stock market. High markets are proverbially a source of new equity capital.

However, the change this year over last in the area of new security issues is already marked. In the first quarter of 1951, all corporate offerings (all purposes) are 12.5% higher than in same period 1950. More significantly, the dollar value of issues for new plant and equipment this year has risen 34.5% over 1950's first quarter.

A large portion of this new money for expansion has been, and continues to be, for utility companies. For instance, some $430 million was for communications (telephone and telegraph); $420 million for electric, gas and private water company expansion; and $190 million for expansion of manufacturing facilities.

Find foreign tie-ins violate anti-trust law

A company that has set up separate companies to handle its business in foreign areas must beware of technical violation of the Sherman anti-trust act. That was the clear warning in last week's U. S. Supreme Court decision on a case involving the Timken Roller Bearing Co., and its British and French subsidiaries.

The court ruled that Timken had indeed fixed prices, split up markets and otherwise restrained trade through illegal arrangements with French and British Timken, as charged by the Department of Justice.

The French and British companies were organized in their respective countries, with American Timken holding a substantial stock interest in each. Timken, the court found, had acted all along as though the companies were legally what they were in fact—part of a "joint venture" amounting to subsidiaries or parts of the same company. (Had the foreign

companies been legal subsidiaries, the government admitted, there could have been no case against Timken.)

A majority (five justices) ruled that Timken had violated the Sherman Act, and upheld an injunction against further restraints of this type. However, the court did not direct (as requested by the Department of Justice) that Timken Roller Bearing Co. sell out all its holdings and other interests in the two foreign companies.

The decision left two alternatives to companies with similar set-ups: Either compete with your affiliates abroad, or make them subsidiaries. Actually, this is the same rule that Justice has been applying domestically.

LeTourneau to make steel for own production needs

Increasing difficulties in obtaining the large quantities of steel required in the manufacture of earthmoving equipment have convinced R. G. LeTourneau, Inc., Peoria, Ill., that the company should produce its own supply of steel.

Accordingly, foundations have been poured and construction is progressing on the LeTourneau steel mill at the company's Longview, Tex., plant site. The new mill is scheduled to be in operation by the end of this year, with a capacity of 1,000 tons per day of finished steel plate—12 ft wide and ranging in thickness from ¼ in to 12 in.

Operations will be carried on in a building 500 ft long and 100 ft wide, costing nearly $1,000,000. The mill is to be integrated installation, including two electric furnaces and a complete rolling mill.

LeTourneau will own and operate the new plant and its steel production will go to supply the firm's needs in its U. S. plants.

U. S. reports slight gain in building expenditures

New construction expenditures in May amounted to $2.5 billion, the building materials division, U. S. Department of Commerce, and the Labor Department's Bureau of Labor Statistics reported last week.

The total represents a relatively small advance—about 6%—over April. The advance was credited largely to substantial increases in defense plant and military construction, and seasonal expansion of most types of nonresidential and heavy construction work. This work outbalanced a drop in new home building expenditures—the first May downturn on record (since 1939).

(Continued on page 82)

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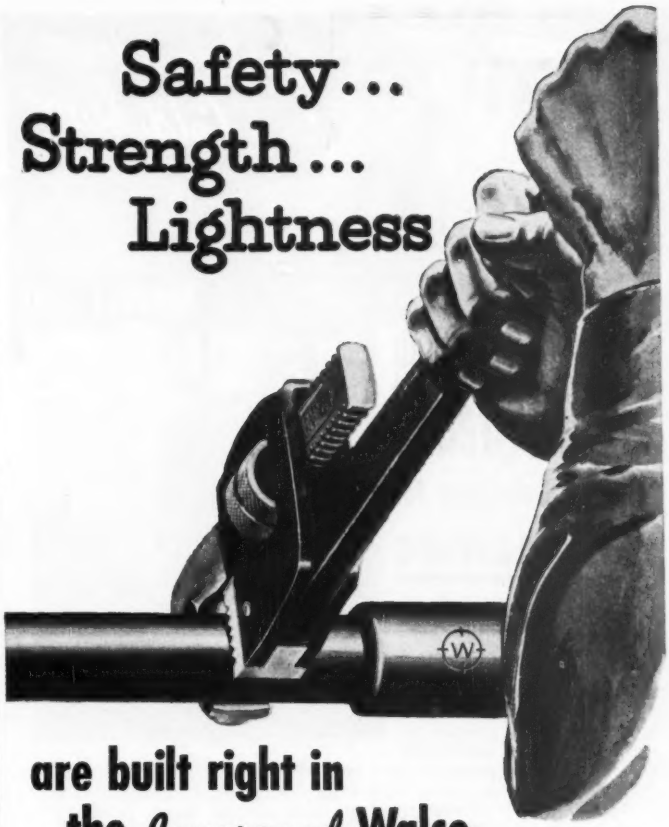

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Construction business . . .

The decline in residential building activity, the government agencies said, reflects the drop in new housing started during the winter, and the further downturn in April. The total value of new private residential buildings put in place amounted to $854 million—3% less than in April and 18% less than in May, 1950.

Public construction outlays amounting to $813 million in May were 17% above April and 39% above May, 1950. Atomic energy and other defense work, military facilities and highway work accounted for most of the increase.

Construction backlog mounts with restrictions

Mounting under the pressure of government strictures that are clamping a tightening lid on actual construction work, engineering construction proposed in May—but not as yet under contract—rose by nearly $1-billion.

The increase for the month brought ENGINEERING NEWS-RECORD's measured backlog for the United States to $56,664,770,000, a jump of $905 million since April. By comparison, the backlog jumped up $596 million between March and April, and $524.9 million from February to March.

Observers agreed that restrictions on credit and use of materials, and on certain types of construction—plus difficulty of obtaining certain materials—were combining to force many projects into the backlog totals, rather than into work in progress.

The change in emphasis—from commercial structures and housing to heavy industrial building—was still apparent.

For the month of May, private construction jumped upward by $544.8 million, to reach a total of $20,757,440,000 on the books. Public construction of all types reached $35,907,330,000—a jump of $360 million over April.

Largest component of the private construction total was industrial building, which gained a total of $268 million to reach the record total of $7,492,901,000. Commercial construction in the backlog went up $110 million, to reach $7,299,306,000. Biggest contributor in the public works category was public buildings, where a total of $12,623,656,000 is now on the books.

In the same month, Canada's backlog, interestingly enough, fell by $68.6 million, to end at a total of $9,816,232,000.

Construction business . . .

UNIT PRICES BID BY CONTRACTORS

Denver, Colo., dam

Eight bids were received May 17 by the Denver, Colo., Board of Water Commissioners on the construction of Reservoir 22 dam, part of the Denver Municipal Water Works. Macco Corp. of Paramount, Calif., and the Puget Sound Bridge & Dredging Co. of Seattle, Wash., the low bidders, were awarded the contract. Their bid was 12% below the next to low bid and 32% below the highest.

The project, consisting of excavation and construction of the concrete dam and apron, and the laying of sewer pipe drains, is to be completed within 1050 days. Wage rates in the Denver area are: common laborer, $1.50; structural ironworkers and hoisting engineers, $2.35; and cement finishers, $2.40.

Bidders included:

1 Macco Corp., Paramount, Cal., & Puget Sound Bridge and Dredging Co., Seattle, Wash. (Contract) $7,168,966.00

2 Grafe-Callahan Constr. Co.; Rhoades-Shofner Constr. Co., both of Los Angeles, Cal.; & Gordon Constr. Co., Denver. 8,155,317.50

3 The Arundel Corp & L. E. Dixon Co. of San Gabriel, Cal.; Hunkin-Conkey Constr Co., Cleveland, O.; American Pipe & Constr. Co., Los Angeles.... 10,513,231.00

Items	Quantity	Unit prices 1	C 2
Diversion and care of water ..... ls	.....	$50,000	$240,000
Clearing of dam site ..... A	9	1,000	310.00
Excav—adit, tunnel, valve chamber ..... cy	4,600	35.00	95.00
Timbering ..... Mbf	12	500.00	415.00
Open cut at tunnel inlet & outlet ..... cy	11,000	6.00	2.18
Excav—dam site above elev 6,977, "dry" ..... cy	85,000	6.00	8.50
Below elev 6,977, "wet" ..... cy	27,000	7.00	8.50
Backfill ..... cy	3,400	2.00	1.15
Drilling grout holes, 0'-35' deep ..... lf	9,035	5.00	3.70
35'-75' deep ..... lf	4,840	5.00	3.70
75'-100' deep ..... lf	510	5.00	3.70
Over 100' deep ..... lf	500	5.00	3.70
Place metal pipe & fitting, fdn, grout & drg ..... lb	45,000	0.15	0.33
Pressure grouting foundation & tunnel ..... cf	35,000	2.40	3.20
Drill drainage holes, 0'-25' deep ..... lf	3,000	10.00	7.60
25'-50' deep ..... lf	3,000	10.00	7.60
Place metal tubing & fittings for ctr joint grout ..... lb	43,850	0.60	0.17
For conc cooling ..... lb	420,000	0.25	0.07
Place metal pipe & fittings for formed drains ..... lb	26,100	0.15	0.15
Pressure grouting contr jts & cool system ..... cf	7,000	3.50	6.80
Install cast iron gallery drain ..... lb	29,600	0.05	0.07
Place 6" sewer pipe drains unecmented joints ..... lf	100	3.00	3.75
8" split sewer pipe drains, cemented joint ..... lf	500	1.00	0.75
Porous concrete ..... cy	10	20.00	53.00
Place steel reinf bars ..... lb	400,000	0.03	0.05
Install outlet conduits ..... lb	247,200	0.05	0.04
Conc—dam & apron, (cement in bulk) ..... yd	588,800	9.15	9.90
Conc in training walls ..... cy	940	30.00	34.25
Adit, tunnel & valve chamber ..... cy	1,560	70.00	57.00
In tunnel outlet channel ..... cy	410	80.00	57.80
In trashrack structures ..... cy	102	100.00	118.50
Construct power outlet valve house ..... ls	.....	6,000	3,650
Cooling concrete ..... cy	475,000	0.25	0.14
Place—metal sealing strips ..... lf	17,000	0.65	0.78
Grout groove covers ..... lf	4,750	1.60	0.72
Expansion joint filler ..... sf	850	1.00	1.25
Installing: Trashracks ..... lb	52,000	0.06	0.07
Ball & needle valves ..... lb	172,000	0.08	0.05
Metal handrails & stairways ..... lb	86,700	0.25	0.34
Cranes ..... lb	8,300	0.09	0.17
Misc metal work ..... lb	31,600	0.09	0.52
Furnish & place—dumped riprap ..... sy	600	1.60	3.15
Hand placed riprap ..... cy	200	5.00	6.05
Overhaul over 500 feet free haul ..... mi y	45,000	0.07	0.11

Cable car tracks, San Francisco, Calif.

The Public Utilities Commission of San Francisco, Calif., awarded the work on the reconstruction of cable car tracks on Mason Street and Columbus Ave., that city, to the low bidder on May 15. The bid was 24% and 26.3% below the second and highest bid respectively.

The work includes excavation, removal of track, laying of rail and paving, and must be completed within 100 days, with damages of $50 per day beyond that period. A bonus of $50 a day, not exceeding 10 days, will be paid to the contractor in the event that the job is completed beforehand. Rails, washers, plates, tie rods, etc., will be furnished by the city, who will also allow the use of an electric crane in the yard. Wage rates to be paid are: concrete laborer, $1.60; drilling engineers, $2.29; concrete mixers, $1.94-$2.24; and crane operators, $2.44.

Bidders included:

1 Municipal Railway, San Francisco, Calif. (Contract) $48,868.20

2 Lowrie Paving Co., San Francisco 64,481.80

3 Fay Improvement Co., San Francisco 66,352.00

Items	Quantity	Unit prices 1	C 2
Removing old rail & pavement ..... ft	11,200	$2.10	$2.31
Installing relayer rail ..... ft	9,600	1.35	1.91
Special construction at faulty yokes, installing ties, tie rods, etc. ..... ea	22	13.10	26.40
Adjusting separation between existing slot rails ..... ea	100	8.35	5.50
Construct concrete paving base ..... sf	29,100	0.25	0.45
Construct asphaltic wearing surface ..... T	432	9.236	14.00

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

† **Me., Brunswick**—RUNWAYS, etc.—B.A. 6/26—Pub. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., runways, taxiways land aircraft parking areas, U. S. Naval Air Station, Spec. No. 28171. Plans deposit $100. CD 4/2.

LOW BIDDERS—HEAVY CONSTRUCTION

J. A. Singarella Co., 15 Bay St., Dorchester, Mass., Low Bidder, **$403,700.** No. 34 airport pumping station, appurtenances, EAST BOSTON, MASS. State, Admin. Bldg., Logan Airport, East Boston, Mass. Bids May 24. CD 5/2.

Joseph Perry, 435 Bolton St., New Bedford, Mass., Low Bidder, **$139,055.** off Shore Stone Mound and Drainage. NEW BEDFORD, MASS. Pub. Wks. Dpt., 100 Nashua St., Boston, Mass. Bids Apr. 17. CD 4/12

S & M Constr. Co., 10 Salmon St., Providence, R. I. Low Bidder, **$683,073.** Bald Hill Rd. extens., rein.-con. 1.045 mi., Bridge No. 425 an overpass I-beam superstructure, approx. 100 tons steel having 2 spans approx. 48 ft. between pier and abutments, UI-42 (2), Warwick and West Warwick, Warwick Co., RHODE ISLAND, State Hy. Dpt., State House, Providence R. I. Bids May 25.

LOW BIDDERS—BUILDINGS

▲ Joseph Rugo, Inc., 581 Boylston St., Boston Mass. Low Bidder, **$2,073,498**, PHA 2-11, HOUSING, Rugples, Tremont, Whittier Sts., Roxbury, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. Bids May 25.

CONTRACTS—HEAVY CONSTRUCTION

▲ **C. J. Maney Co., Inc.**, 24 Dane St., Somerville, Mass., Contract Awarded, **$1,118,065,** Contr. E-1, substructure and approaches central artery, Boston, MASSACHUSETTS Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mas., Bids May 15. CD 5/23, under LB.

CONTRACTS—BUILDINGS

▲ **Etcoff Constr. Co.**, 1318 Beacon St., Brookline, Mass., Contract Awarded, **$1,145,720,** Consolidated SCHOOL, Wilder Field, Waterford St., GARDNER, MASS. CITY, City Hall, Gardner, Mass. Bids May 8, awarded May 21. CD 5/18, under LB.

American Building Co., 33 Moorland Ave., Providence, R. I. Owner Builds. **$450,000.** 48 RESIDENCES, Mayfield Ave., CRANSTON, R. I.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

†**D. C., Wash.**—B.A. 7/2—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., 30 m.g. clear-water basin at Dalecaria Filter Plant, Serial No. CIVENG 39-080-51-66. CD 7/14/44.

BIDS ASKED—BUILDINGS

▲ **Md., Baltimore**—HOUSING—B.A. 6/19—Baltimore Housing Auth., 709 E. Edger St., 35 bldgs., 250 brick, concrete, cinder block housing units, Westport Homes Extension. $3,200,000. Plans deposit $10. F. L. W. Moehle & Assoc., 2514 N. Charles St., archts. Fenton & Lichtig, 2023 Maryland Ave., assoc archts. CD 8/18/50.

† **Pa., Harrisburg**—STORAGE—B.A. 6/21—U. S. Property & Disbursing Officer for Pennsylvania, Indiantown Gap Military Reservation, R.D. 2, Annville, Proj. 1, vehicle storage bldg. with service center at Harrisburg Military Post. Plans deposit $5.

† **Pa., Lock Haven**—VEHICLE STORAGE—B.A. 6/21—U. S. Property & Disbursing Officer for Pennsylvania, Indiantown Gap Military Reservation, R.D. 2, Annville, Proj. 2, motor vehicle storage bldg. Plans deposit $5.

LOW BIDDERS—HEAVY CONSTRUCTION

▲ **T & T Constr. Co.**, 1066 60 St., Brooklyn 19, N. Y. Low Bidder. **$1,191,498,** storm sewers, Utopia Parkway, and 69 Ave., Queens Boro, NEW YORK. President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, 15, N. Y. Bids Mah 28. CD 5/25.

Victor Clemente, 115-28 131 St., South Ozone Park, N. Y. Low Bidder. **$216,961,** sewers, 133, 131, 130, 71 Aves., 224, 225, 226, 227, 228, 229, 230, 232 and 60 Sts., 70 Rd. and 65 Dr., Queens Boro, NEW YORK President Queens Boro, Boro Hall, 120-55 Queens Blvd., Kew Gardens, 15, N. Y. Bids May 22.

LOW BIDDERS—BUILDINGS

† **Colwill Constr. Co.**, 2114 Maryland Ave., Baltimore, Md. Low Bidder. $356,300. standardization 40 KITCHENS in 170-man type mess halls, FORT GEORGE MEADE, MD. Dpt. Army, Purchasing & Contr. Branch, 37 Commerce St., Baltimore, Md. Bids May 24.

Wm. F. Sutter, Nescopeck, Pa. Low Bidder. **$550,000.** 1 story, concrete block, steel, Junior and Senior Colored High SCHOOL, between Snow Hill and Newark, SNOW HILL, MD. Worcester Co., Bd. Educ., Snow Hill. Md. Bids May 22. CD 5/10.

CONTRACTS—BUILDINGS

Samuel A. Kroll, Inc., 4101 Springdale Ave., Baltimore, Md. Contract Awarded. **$300,000.** 2 story, brick, 90x140 ft. SYNAGOGUE and COMMUNITY CENTER, BALTIMORE, MD. Beth Jacob Congregation, 5715 Park Heights Ave., Baltimore, Md. Bids Mar. 29. CD 3/15.

Goodman Constr. Co., 7 Fallsway, Baltimore, Md. Contract Awarded. 1 story, 200x300 ft., brick, steel, concrete WAREHOUSE and OFFICE, BALTIMORE, MD. A. M. Castle & Co., 801 N. Kresson St., Baltimore, Md. Lucius R. White Jr., 1009 N. Calvert St., Baltimore, Md., archt.

S. E. Wentz & Son, 6113 Marietta Ave., Baltimore, Md. Contract Awarded. **$300,000.** brick, frame CHURCH and SUNDAY SCHOOL, BALTIMORE, MD. Second English Evangelical Lutheran Church, 1127 N. Longwood St., Baltimore, Md. Bids Apr. 25. CD 4/4.

Chas. E. Brohawn & Bro., 205 Rosewood Ave., Cambridge, Md. Contract Awarded. **$876,369.** 1 story, brick, concrete, cinder block, steel Maces Lane High SCHOOL, CAMBRIDGE, MD. Dorchester Co. Bd. Educ., Cambridge, Md. Johannes & Murray, 855 Pershing Dr., Silver Spring, Md., archts.

J. Norman Henkel, 2111 Rolling Rd., Woodlawn, Md. Contract Awarded. 1 story, 350x425 ft., brick, concrete, steel, concrete block PLANT, ODENTON, MD. National Plastic Products Co., Odenton, Md., H. L. Katz, 3212 Gwynns Falls Parkway, Baltimore, Md., archt.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

La., Shreveport—AIRPORT IMPRVS.—B.A. 6/21—City, City Hall, airport lighting sys., incl. elevated marker lights for runways and taxiways, concrete apron, taxiway, service roads, clearing and grubbing, water supply and fire protection sys., sewage disposal sys., Greater Shreveport Municipal Airport, F. A. Proj. 9-16-019-107; adv. ENR 6/14. CD 5/9/49.

† **S. C., Parris Island**—B.A. 6/22—Officer in Charge of Construction, Box 365, Naval Base, dredging approx. 166,000 cu. yd. material from wet slip and small boat basin at Marine Corps Recruit Station. Plans deposit $10.

† **Kentucky**—B.A. 6/26—U. S. Eng., 830 W. Broadway, Louisville, Zone 3, concrete substructure, brick superstructure walls, 65x110 ft. Fairgrounds Pumping Plant, manholes, headwalls, sewers, drains, riprap, sluice gates, flapgates, valves, pumps, transformer sub-station, CIVENG 15-029-51-132. Plans deposit $15. CD 1/12.

BIDS ASKED—BUILDINGS

N. C., Oxford—HOSPITAL—B.A. 6/22—Bd. Trustees Granville Co. Hospital, Andrew Jamieson, chn., Oxford, (a) addns., alterations to existing hospital (b) construct 30-bed hospital. Plans deposit $50 general constr., $25 each mechanical. George Watts Carr, 111 Corcoran St., Durham, archt.

LOW BIDDERS—HEAVY CONSTRUCTION

F. A. Triplett, Inc., Box 297, Chester, S. C. Low Bidder. **$482,692,** structures, 3.45 mi. Proj. S-204, S-119 (5), Durham Co.*****E. H. Hines Constr. Co.**, Box 924, Greenwood, S. C., **$184,609,** est. $125,000-$159,000. structures, 24.5 mi. Proj. 9775, S-391 (1), Madison and Haywood Counties*****Wilson Constr. Co., Inc.**, Box 603, Salisbury, N. C., **$102,771,** est. $100,000-$125,000. structures, 14.16 mi. U. S. 1, Proj. 4854, F-658 (2), Wake and Franklin Counties; **$60,757,** structure over Clark Creek Proj. No. BS 9-7-83-15, Lincoln Co.*****Bowers Constr. Co.**, Box 170b, Raleigh, N. C., **$76,504,** est. $75,000-$100,-000, bridge over Fishing Creek Proj. 3/9-32-214, New Hanover Co.*****Roy M. Homewood**, Box 150, Chapel Hill, N. C., **$75,440,** 3 bridges on county road, Proj. No. 5-9-42-208, Alamance Co., NORTH CAROLINA. State Hy. & Pub. Wks. Comn., Raleigh, N. C., Bids May 29. CD 5/22.

Nello L. Teer Co., Box 1131, Durham, N. C., Low Bidder, **$77,356,** est. $50,000-$75,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf. and structures 2.32 mi. Proj. S-401, S-486 (1), Person Co.; **$111,411,** est. $75,000-$100,000, traffic bound macad. or PCSBC bit. surf. or b. conc. surf. 3.45 mi. Proj. S-204, S-119 (5), Durham Co.*****Ballenger Paving Co.**, Box 1046, Greenville, S. C., **$229,265,** est. $200,000-$225,000. STBC, bit. surf. tr. or sand asph. or b. conc. surf. 19.03 mi. Proj. 1-607, S-444 (1), 1-9-11-206, Northampton Co.; **$104,635,** traffic bound macad. or PBSBC, bit. surf. tr. or b. conc. surf. 3.49 mi. Proj. S-403, S-492 (1), Person Co.*****Ziegler-Cline Constr. Co.**, Box 386, Fayetteville, N. C., **$90,306,** est. $75,000-$100,000, sand asph. or b. conc. surf. 17.7 mi. Proj. BS 3-6-34-134, 3-9-34-234, Sampson Co.; **$67,616,** est. $50,000-$75,000, sand asph. or b. conc. surf. 13.3 mi. Proj. 3-9-30-230, Cumberland Co.

Dickerson, Inc., Box 448, Monroe, N. C., **$64,699,** est. $50,000-$75,000, STBC and bit. surf. tr. 4.54 mi. Proj. 1-150, S-454 (1), Camden Co.; **$120,896,** est. $50,000-$75,000, grading, subgrade reinf. 7.95 mi. Proj. 1-701, S-484 (1), S-476 (1) Perquimans Co.; **$70,371,** est. $50,000-$75,000, b. conc. binder and surf. 5.85 mi. U. S. 421, Proj. BS 8-6-75-169, Wilkes Co.*****White Constr. Co.**, Kinston, N. C., **$151,076,** est. $125,000-$150,000, sand asph. or b. conc. surf. 12.4 mi. Proj. 2-9-17-228, 2-9-24-242, Code 5900-204, Craven and Pitt Counties*****N. F. Eure**, Box 209, Beaufort, N. C., **$99,532,** est. $75,-000-$100,000, grading, STBC, Proj. 1-9-1-210, Bertie Co.*****Towles Cline Constr. Co.**, Box 1617, Wilmington, N. C., **$96,523,** est. $75,000-$100,000, sand asph. or b. conc. surf. 18.7 mi. Proj. 3-9-33-222, Pender Co.*****Wayne Eng. & Constr. Co. Inc.**, Box 306, Mount Olive, N. C., **$201,854,** est. $200,000-$225,-000, STBC, sand asph. surf. and structures Proj. 3-9-34-227, Sampson Co.

Kikes & Yount, Box 330, Reidsville, N. C., **$122,409,** traffic bound macad or PCSBC, bit. surf. tr. or b. conc. surf. 6.03 mi. Proj. S-254, S-471 (1), S-9-45-206, Granville Co.; **$106,507,** est. $100,000-$125,-000, traffic bound macad., bit. surf. tr. or b. conc. surf. and structures 6.18 mi. Proj. S-452, S-503 (1), Rockingham and Guilford Counties*****F. D. Cline Constr. Co.**, Box 349, Raleigh, N. C., **$85,536,** est. $75,000-$100,000, sand asph. or b. conc. surf. 16.4 mi. Proj. 3-9-31-227, Code 5900-304, Duplin Co. *****J. C. Critcher, Inc.**, Asheville, N. C., **$570,639,** traffic bound macad., bit. surf. 24.5 mi. Proj. 9775, S-391 (1), Madison and Haywood Counties *****Grannis & Sloan, Inc.**, Box 3006, Fayetteville, N. C., **$224,906,** est. $250,000-$300,000, grading 14.16 mi. U. S. 1, Proj. 4854, F-658 (2), Wake and Franklin Counties, NORTH CAROLINA. State Hy. and Pub. Wks. Comn., Raleigh, N. C. Bids May 29. CD 5/22.

Chicago Bridge & Iron Co., Birmingham, Ala., Low Bidder, **$94,400,** water tank and tower*****Powell Bros. Constr. Co.**, Fort Lauderdale, Fla., **$446,000,** three high-lift pumps*****E. W. Bacharack, Inc.**, Rialto Bldg., Kansas City, Mo., **$40,200,** water treatment equipment, FORT LAUDERDALE, FLA. City, Fort Lauderdale, Fla. Bids May 21. CD 5/9.

Herbert Constr. Co., 2337 20 Ave. S., Birmingham, Ala. Low Bidder, **$425,445,** natural gas distr. sys., MANCHESTER, GA. City, Manchester, Ga. Bids May 28. CD 5/16.

Holt & Thomason, 115 N. Ripley St., Montgomery, Ala., Low Bidder, **$380,000,** natural gas distr. sys., WEST POINT, GA. City, **West Point, Ga. Bids May 28.** CD 5/16.

W A. McWaters, 2 Clayton St., Montgomery, Ala., Low Bidder, **$76,512**, 0.51 mi. bridge, Morgan Co.; **$77,775,** removing structures on road from Mobile toward Theodore, Mobile Co.*****Montgomery Constr. Co.**, Bell Bldg., Montgomery, Ala., **$79,106,** 0.059 mi. brioge Blount Co.*****A. L. Grow Constr. Co.**, 2718 16 Court North, Birmingham, Ala., **$153,466,** structural plate pipe at Hurricane Creek on U. S. 31 between Cullman and Macon, Cullman Co.*****Foster & Creighton**, American National Bank Bldg., Nashville, Tenn., **$363,-891.** 0.622 mi. overpass, Jefferson Co.*****Hugh Steele Constr. Co.**, Centre, Ala., **$76,766** 0.557 mi. bridge, and approaches, Jefferson Co.*****Baird & Latimer Co.**, Selma, Ala., **$61,338,** 0.738 mi. bridge, approaches

(Continued on page 86)

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, northwest, waterways $34,000; or other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction
(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: (including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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(IGAS JOINT SEALER, SIKA CAULKING) IGAS JOINT SEALER seals even against pressure and continual movement. Will not sag, crack, dry out, become brittle or lose adhesion. In work above grade, SIKA CAULKING is used where highest resistance to atmospheric change is desired.

FOR EXTERIOR REPAIRS
(SIKA-KOTE, SIKA TRANSPARENTS) SIKA-KOTE, a protective and decorative coating in 9 colors and white, prevents moisture penetration on concrete and masonry structures. SIKA TRANSPARENTS render brick structures water-repellent and preserve their appearance.

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(SIGUNIT, SIKA No. 4, PLASTIMENT) For quick work against leaks or in tidal areas, SIGUNIT in mortar prevents washouts. SIKA No. 4 (GROUT-SIKA) accelerates set, increases cohesion of mortar and adhesion of grout to rock.

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(Continued from page 84)

Pickens Co., ALABAMA, State Hy. Dpt., Montgomery, Ala. Bids May 25. CD 5/17.

Montgomery Constr. Co., Bell Bldg., Montgomery, Ala., **$205,035,** low bidder bridges, 9.814 mi. Blount Co. ***Goodwyn & Murphee,** Troy, Ala., $108,487, bridges 8.784 mi. Dallas and Wilcox Counties, **ALABAMA** State Hy. Dpt., 500 Dexter Ave., Montgomery, Ala. Bids May 25. CD 5/17, under Streets and Road.

▲ **Hugh Steele Constr. Co.,** Centre, Ala., Low Bidder, **$146,701,** base and bit. 11.539 mi. Cherokee Co.; **$407,022,** bit. 9.814 mi. Blount Co.***Georgia-Alabama Road Constr. Co.,** Comer Bldg., Birmingham, Ala., **$96,688,** base and bit. 7.45 mi. Dallas Co.*** **Floyd S. Milford Co.,** 1412 S. 13 St., Birmingham, Ala., **$491,000,** grading, drainage, 12.224 mi. Lawrence Co.***Haigler Constr. Co.,** Atlanta Hy., Montgomery Ala., **$76,914,** base and bit. 14.114 mi. Bullock Co.***Clyde O. Mitchell,** 104 N. 44 St., Birmingham, Ala., **$213,810,** grading, drainage 8.116 mi., Lauderdale Co.

Carlton Contg. Co., Albany, Ga., **$210,158,** grading, draining 5.466 mi. Winston Co.***Joe F. Walters,** Troy, Ala., bit. 8.784 mi. Dallas and Wilcox Counties ***Moss-Thornton Co.,** Leeds, Ala., **$244,278,** grading, drainage 5.298 mi. Morgan Co.***Waters Constr. Co.** Elizabethtown, Ky., **$146,615,** crushing, stockpiling aggregate on Moulton-Decatur Rd., Lawrence and Morgan Counties***Cancelled bids to have been opened May 25, reconstr. portions 2.649 mi. State Hy. Route, Jefferson Co., ALABAMA, State Hy. Dpt., 500 Dextxer Ave., Montgomery, Ala. CD 5/17.

LOW BIDDERS—BUILDINGS

▲ **H. L. Coble Constr. Co.,** Greensboro, N. C. Low Bidder. **$2,188,000,** general constr.***W. H. Sullivan, Inc.,** Greensboro, N. C., **$345,745,** heating for 400 DWELLING units and ADMINISTRATION bldg., Proj. N.C. 11-2, GREENSBORO, N. C. Greensboro Housing Auth., A. C. Hall, Chm., City Hall, Greensboro, N. C. Bids May 29. CD 5/7.

CONTRACTS—HEAVY CONSTRUCTION

† **Atlantic Gulf & Pacific Co.,** 15 Park Row, New York, N. Y. Contract Awarded. **$689,550,** dredging St. Johns River Channel to 42 ft. between Mayport and Fulton Section, FLORIDA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids Apr. 17. CD 4/24, under LB.

James H. Cragg Constr. Co., P. O. Box 600, Ocala, Fla. Contract Awarded, **$163,500,** paving streets in northwest section of GAINESVILLE, FLA. City, Gainesville, Fla. CD 4/24.

▲ **Louisville & Nashville R.R. Co.,** C. H. Blackman, ch. engr., 908 W. Broadway, Louisville, 1, Ky. Own Forces. Approx. **$1,000,000.** yards addn. at Strawberry Station, LOUISVILLE, KY. CD 4/17.

Adamsville Telephone Co., Adamsville, Tenn. Owner Builds. $151,000. telephone lines in McNairy and Hardin Counties, TENNESSEE.

CONTRACTS—BUILDINGS

B. F. Parrott & Co., Inc., Boxley Bldg., Roanoke, Va. Contract Awarded. **$300,000.** construct PLANT, GLASGOW, VA. James Lees & Sons Co., Bridgeport, Pa. Awarded May 25. CD 1/31.

† **States Contg. Co.,** Newport News, Va. Contract Awarded. **$147,777,** repair 21 warehouses at Camp Patrick Henry, NEWPORT NEWS, VA. U. S. Eng., foot of Front St., Norfolk, Va.

Hamilton Constr. Co., 7541 N.E. 3 Pl., Miami, Fla. Contract Awarded. **$307,500,** Fairlawn Elementary SCHOOL, MIAMI, FLA. Dade Co. Bd. P. Instruction, 275 N.W. 2 St., Miami, Fla. CD 4/26, under LB.

United Engineers & Constructors, Inc., 1401 Arch St., Phila., Pa. Contract Awarded. **$750,000.** PLANT for making butane gas, CALVERT CITY, KY. National Carbide Co., 60 E. 42 St., New York, N. Y.

▲ **Haase Constr. Co., Inc.,** 822 Perdido St., New Orleans, La. Contract Awarded. **$14,000,000.** 16 story OFFICE bldg. as divisional headquarters, NEW ORLEANS, LA. The Texas Co., 135 E. 42 St., New York, N. Y. Claude E. Hooton, 2502 Robinhood St., Houston, Tex., archts. CD 2/28/45.

R. C. Mathews, Inc., 478 Craighead St., Nashville, Tenn. Contract Awarded. Approx. **$150,000.** PLANT addn., NASHVILLE, TENN. Neuhoff Packing Co., 1307 Adams St., Nashville, Tenn.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Ind., New Albany**—B.A. 6/19—U. S. Eng., 830 West Broadway, Louisville, 3, Ky., flood protection Section 2, Part 2, Serial No. CIVENG 15-029-51-128. Extended date. CD 5/11.

BIDS ASKED—BUILDINGS

† **O., Dayton**—WAREHOUSES—B.A. After 6/4—U. S. Eng., 830 W. Broadway, Louisville 3, Ky., 200x1,000 ft. warehouse, incl. 20,760 sq. yds. concrete road and apron paving; 1,950 lin. ft. railroad spur extens.; storm and sanitary drainage lines; electric power and water line extens.; 2,360 lin. ft. communication duct line, Serial No. ENG 15-029-51-58. Plans deposit $15.

Ill., Skokie—FACTORY—Bids Asked—Abar, Inc., 2652 Lake St., Chicago, Zone 12, 1 and 2 story, factory, Greenwood and Hartney Sts. $200,000. Barancik & Conte, 919 N. Michigan St., Chicago, Zone 11, archts.

SOON LETS CONTRACT—BUILDINGS

Ind., Whiting—CHURCH—St. Adelberts Church, 121 St. and Indianapolis Blvd., soon lets contract church, $300,000. Kenneth Vaughn, 6714 Madison St., Hammond, archt. CD 3/23.

O., Cleveland—PLANT—Bigelow Sanford Carpet Co., 12775 Berea Rd., soon lets contract 10,000 sq. ft. plant addn. $350,000. A. Epstein & Sons, 2011 Pershing Rd., Chicago 9, Ill., engrs.

LOW BIDDERS—HEAVY CONSTRUCTION

City, City Hall, Milwaukee, Wis., cancelled bids to have been opened May 28, bridge over Menomonee River, MILWAUKEE, WIS. Will re-advertise. CD 5/18.

CONTRACTS—HEAVY CONSTRUCTION

Midstates Constr. Co., 1001 E. Berry Ave., Fort Wayne, Ind. Contract Awarded, **$362,000,** filtration and flocculation plant, MICHIGAN CITY, IND. City, Dpt. Water, Michigan City, Ind. Bids May 1, awarded May 22. CD 5/10, under LB.

Cadillac Asphalt Paving Co., 12490 Evergreen St., Detroit, Mich., Contract Awarded, **$79,365,** 28,000 sq. yd. two-course b. conc., recapping Livernois St.; **Louis Garavaglia,** 24240 Mound Rd., Center Line, Mich., **$252,441,** 90,300 sq. yd. b. conc. two-course Davidson, Limwood, Puritan and State Fair Sts., Group 51-4, DETROIT, MICH. City, Carl D. Warner, comr., Pub. Wks. Dpt., 104 City Hall, Detroit, Mich. Bids May 15. CD 5/10.

Ray Stevens Co., Kalamazoo, Mich. Contract Awarded. $155,000. addns., imprvs. sewage disposal plant treatment facilities, South Michigan State Prison, JACKSON, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids May 2. CD 4/19.

Rocco Ferrera Constr. Co., 19518 Jeann St., Detroit, Mich. Contract Awarded. **$200,000.** sanitary and storm sewers, MARYSVILLE, MICH. City, City Comm., City Hall, Marysville, Mich. Bids May 10. CD 4/30.

CONTRACTS—BUILDINGS

F. G. Crary & Son., 7237 Madison St., Hammond, Ind. Contract Awarded. **$300,000** 2 story, bsmnt., 36-unit APARTMENT, HAMMOND, IND. Edison Apartments Inc., 6749 Madison St., Hammond, Ind. Kenneth Vaughn, 6714 Madison St., Hammond, Ind. Bids May 21. CD 8/24/50.

Garden Homes, Inc., 218 Sherland St., South Bend., Ind., Owner Builds. **$300,000,** 29 HOMES, SOUTH BEND, IND.

Aaron Bodenweiser, 5459 Everett St., Chicago, 51, Ill. Owner Builds. **$350,000,** 5 story 45-unit APARTMENT, 7c and Phillips Ave., Zone 49, CHICAGO, Ill. Awarded May 25.

E. N. Jay Constr. Co., 105 W. Madison Ave., Chicago, 3, Ill. Contract Awarded. **$750,000,** 67,000 sq. ft. BOTTLING PLANT, CHICAGO, ILL. Chicago Seven-Up Bottling Co., 4501 W. Kinzie St., Chicago, 44, Ill. L. P. Sumarkoff, 105 W. Madison St., Chicago, 3, Ill., archt. Awarded May 23. CD 5/23.

▲ **Marquette Homes, Inc.,** 6255 S. Keeler St., Chicago, Ill. Owner Builds. **$1,000,000,** 100 HOMES near Marquette Park, CHICAGO, ILL. Wm. Smith, 9543 S. Loomis St., Chicago, 20, Ill., archts. Awarded May 28.

Preferred Realty & Builders Co., 10507 S. Kedzie St., Chicago, Ill. Owner Builds. **$375,000.** 30 RESIDENCES, EVERGREEN PARK, ILL. Awarded May 24.

E. W. Sproul Constr. Co., 173 W. Madison St., Chicago, 3, Ill. Contract Awarded. **$300,000,** steel, brickstone, concrete, TEMPLE addn., GLENCOE, ILL. North Shore Congregation Israel, 840 Vernon St., Glencoe, Ill. CD 2/9/50. Awarded May 22.

Manning Homes, Inc., 6900 Roosevelt St., Oak Park, Ill. Contract Awarded. **$325,000,** 30 RESIDENCES in 1800 and 1900 block, WESTCHESTER, ILL. CD 3/1.

Durable Constr. Co., 127 N. Main St., Wheaton, Ill. Owner Builds. **$450,000,** 30 RESIDENCES, WHEATON, ILL.

Perry Root Co., Flint, Mich. Contract Awarded. **$300,000.** 1 story, bsmnt., brick, stone CHURCH, Dupont and West McClellan Sts., FLINT, MICH. Emanuel Lutheran Parish, Flint, Mich. A. C. Emerling, 112 Madison St., Detroit, Mich., archt.

MacDonald & Kaake, Inc., Marquette, Mich. Contract Awarded. **$353,968,** remodeling Peter White BUILDING, Northern Michigan College of Education, MARQUETTE, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids May 16. CD 4/27.

Schurrer Constr. Co., Pontiac, Mich. Contract Awarded. **$310,330.** 3 story STAFF HOUSE, Pontiac State Hospital, PONTIAC, MICH. State, A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids May 16. CD 4/27.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Ia., Runnells—B.A. 6/19—Polk Co., Des Moines WW sys. $60,000. Brown Eng. Co., 322 K P Bldg., Des Moines engr. Bids May 16 rejected.

† **Neb., Fort Crook**—RADAR SURVEILLANCE, APPROACH CONTROL SYSTEM—B.A. 6/19—U. S. Eng., 1709 Jackson St., Omaha, radar surveillance and approach control sys. at Offut Air Force Base, Inv. 51-62.

† **Iowa**—B.A. 6/27—U. S. Eng., 1709 Jackson St., Omaha, Neb., stabilization of Mosquito Creek Channel Agricultural Levee Unit L-624, Inv. 158 near Council Bluffs. CD 7/5/50.

BIDS ASKED—BUILDINGS

† **N. M., Sacramento Peak**—RESEARCH STATION—B.A. About 6/16—U. S. Eng., P. O. Box 1538, Albuquerque, upper atmospnere research station (A51-1A), incl. 3 duplex family quarters, 4 single family quarters, wood frame constr.; 16-man approx. 7,800 sq. ft. dormitory; community and admin. bldg.; solar observatory bldg.; laboratory; laboratory shop bldg., outside utilities, incl. 25,000 gal. elevated water tank, gasoline, fuel storage, sewer, water electric distr. sys. Serial No. Eng 29-005-51-55. Plans deposit $25.

† **N. D., Devils Lake**—WAREHOUSE—B.A. 6/21—U. S. Property & Disbursement Office, Bismarck, concrete block warehouse at Camp Grafton, Inv. 51-4.

Minn., Hopkins—SCHOOL—B.A. 6/26—Bd. Educ., Independent School Dist. 19, L. H. Tanglen, supt. Schools,

Hopkins, 1 and 2 story brick school. $800,000. Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, Minn., archts. CD 12/12/50.

LOW BIDDERS—HEAVY CONSTRUCTION

State Hy. Dpt., Austin, Tex., cancelled bids to have been opened June 13, base and surf. 33.148 mi. Hy. FM 681, 1017 and 1561 from McCook, north 11.9 mi. to proposed F. M. 1017; from Starr Co. line east to 1.7 mi. west of Linn; from Starr Co. line east 4.7 mi. to McCook. Control No. RV 669-1-3, RV 1227-4-2 and RV 1490-2-1, Hidalgo Co.; flexible base, two course surf. tr. 11.701 mi. Hy. U. S. 83, from Hidalgo Co. line to 1.7 mi. west. Control No. 39-1-7, FP 1 No. 7 337 (2), Starr Co., TEXAS. CD 5/25.

Chas. M. Smith, Thermopolis, Wyo. Low Bidder, **$124,624 constr.** 1-3 span continuous I-beam bridge over Norwood River at Curtis Crossing and 1-3 span continuous I-beam bridge over Norwood River at Bonanza Crossing and misc. work 0.223 mi. Manderson-Hyattville Rd., FASP No. S-34 (5), Big Horn Co., WYOMING State HY. Dpt., John R. Bromley, supt., Cheyenne, Wyo. Bids May 24.

Asbell Bros. Constr. Co., Riverton, Wyo., Low Bidder, **$137,376,** base course surf. and misc. work 6.139 mi. Hulett-Aladdin Rd., Fed. Aid Secondary Proj. S-31 (5) Crook Co.; **$83,537,** grading, draining, one rein.-con. culvert, mis. 6.769 mi. Big Piney-East Rd., Fed. Aid Secondary Proj. S-73 (2), Sublette Co.***Woodward Constr. Co.,** Rock Springs, Wyo., **$138,096,** base course surf. oil tr. by road mix method and misc. 12 mi. of Rock Springs and Hiawatha Rd., S. P. 2842, Sweetwater Co.

J. H. & N. M. Monaghan & Associated Companies, Route 1, Derby, Colo., **$288,089,** base course surf., surf. tr. and misc. work 10.506 mi. Burgess Junction-Shell Rd., Fed. Aid Sec. Proj. S-250 (5), Sheridan and Big Thorn Counties.***Huntley Constr. Co.,** Rock Springs, Wyo., **$88,026** base course surf. misc. work 4.047 mi. Mountain View-Robertson Rd., Fed. Aid Sec. Proj. S-269 (3), Unita Co.***rejected bids May 25 pit run grav. base course 1.809 mi. Worland-East Rd., State Proj. SC-2890, Washakie Co. WYOMING State Hy. Dpt., J. R. Bromley, supt., Cheyenne, Wyo. Bids May 25.

† **Gerald Mora,** P. O. Box 2623, Houston 1, Tex. Low Bidder, **$357,590,** water lines, sewer lines, gas lines, steam lines, concrete paving and walks, fencing, electrical distr. aerial and underground, Holloman Air Force Base, ALAMOGORDO, N. M., U. S. Eng., Box 1538, Albuquerque, N. M., Bids May 31.

LOW BIDDERS—BUILDINGS

▲† **Fisher Constr. Co.,** 4711 Greeley St., Houston 6, Tex. Low Bidder, **$2,183,000** (complete in 400 days) ***Farnsworth & Chambers Co., Inc.,** 3018 Leeland St., Houston, 1, Tex., **$2,096,000** (complete in 540 days) general constr. Veterans Admin. HOSPITAL, Spec. 5105, Proj. No. 42-5098E. HOUSTON, TEX. Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C. Bids May 29. CD 3/30.

Westinghouse Electric Corp., Gas and Electric Bldg., Denver, Colo., Low Bidder, **$174,796,** Items 1, 2, 6 and 7, **Allis-Chalmers Mfg. Co.,** 1920 Market St., Denver, Colo., **$171,562,** Items 4 and 5, municipal ELECTRIC PLANT, equip., incl. 4 power transformers, 4 low voltage switchgear units, 7 outdoor power circuit breakers, 84 disconnecting switches, COLORADO SPRINGS, COLO. City, City Hall, Colorado Springs, Colo. Bids Jan. 4.

† **Newport News Shipbuilding & Drydock Co.,** Newport News, Va. Low Bidder, **$496,800,** two 26,500-hp. vertical-shaft hydraulic TURBINES for Alcova Power Plant Kendrick Proj., Spec. DS-3359, WYOMING Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids May 1. CD 3/20.

CONTRACTS—HEAVY CONSTRUCTION

W. Hodgman & Sons, Fairmont, Minn. Contracts Awarded. $146,209. grav. base, plant-mixed bit. surf. 8.7 mi between Jct. T.H. 75 and 1.5 mi. northwest of Melvin, Polk Co., MINNESOTA. State Hy. Dpt., 1246 University Ave., St. Paul, Minn. CD 5/31, under LB.

Peter Kiewit Sons' Co., Omaha Natl. Bank Bldg., Omaha, Neb. Contract Awarded, **$177,174,** street improvs. and paving parking lots, COUNCIL BLUFFS, IA. City, City Hall, Council Bluffs, Ia. Bids May 21. CD 4/25.

▲ **Associated Natural Gas Co.,** 24 N. Elwood St., Tulsa, Okla. Owner Builds. Approx. **$2,491,042,** pipe lines in connect with 14 towns in southeastern MISSOURI. CD 7/14/50.

Line Constr. Co., Clarksdale, Miss. Contract Awarded, **$195,393,** rural distr. lines, Star City, ARKANSAS C & L Rural Electric Co-operative, Star City, Ark. Bids May 22. CD 5/16.

▲† **Peter Kiewit Sons Co.,** Omaha Natl. Bank Bldg., Omaha, Neb. Contract Awarded, **$1,018,409,** rehabilitation runways at Rapid City Air Force Base, Inv. 19, near Weaver, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 22. CD 5/8.

Sims Bayou Utilities Co., 4100 DeLeon St., Houston, Tex. Own Forces. Approx. **$65,000.** sanitary sewers; **$68,250,** storm sewers, HOUSTON, TEX. Robert M. & E. S. Atkinson, 1st Natl. Bank Bldg., Houston, Tex., engrs. CD 5/16.

† **Spencer-Glade-Oldt-Small & Co.,** Century Bldg., Fort Worth, Tex. Contract Awarded, **$309,000.** administration: **$285,125,** shops units (repair, equipment) MINERAL WELLS, TEX. U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, Tex. Koch & Fowler, 3900 Lemmon St., Dallas, Tex., engrs. Awarded May 18.

J. H. & N. M. Monaghan & Associated Companies, Route 1, Derby, Colo., Contract Awarded, **$151,066,** est. $150,367, base course surf., misc. 7.429 mi. Slater-East Rd., Fed. Aid Secondary Proj. S-55 (3), Platte Co.; **$62,134,** est. $74,189 base course surf., oil tr. by road mix method and misc. 7.558 mi. Iron Mountain Rd., Fed. Aid Sec. Proj. S-78 (1), Laramie Co.***Huntley Constr. Co.,** Rock Springs, Wyo., **$110,515,** est. $109,584, base course surf. oil tr. by road mix method and misc. work on 2.899 mi. Evanston-Ft. Bridger Rd., State Proj. 2573, Unita Co.

W. E. Barling, Inc., Meeteetse, Wyo., **$82,354,** est. $82,505 base course surf. oil tr. by road mix method and misc. work 10.737 mi. Meeteetse-Thermopolis Rd., State Proj. 285, $109,584, base course surf. oil tr. by road mix method and misc. work on 2.899 mi. Evanston-Ft. Bridger Rd., State Proj. 2573, Unita Co.

▲ **Springer Electric Co-operative,** Springer, N. M. Force Account. Approx. **$1,170,000.** 95 mi. 69 kv rural distr. lines, three 1,900 kva sub-stations, 378 mi. rural distr. lines and sys. imprvs., Colfax, Harding, Mora and San Miguel Counties, NEW MEXICO. CD 10/5/50.

CONTRACTS—BUILDINGS

Henry C. Beck Co., Irwin Keasler Bldg., Dallas, Tex., Contract Awarded, **$575,000.** 6 story, 25x100 ft. Indiana limestone and granite MERCANTILE addn., concrete pier and beam fdn., all-weather air-conditioning, DALLAS, TEX. A. Harris & Co., Main and Akard Sts., Dallas, Tex. George L. Dahl, 2101 N. St. Paul St., Dallas, Tex. archt. Awarded May 25.

Joe B. Vickers, 1507 Delano St., Houston, Tex., Owner Builds. Approx. **$395,000.** Unit 1, 75 DWELLINGS, PASADENA, TEX. CD 4/19.

FAR WEST

SOON LETS CONTRACT—BUILDINGS

▲ **Calif., Redding**—HOSPITAL—Sisters of Mercy, 111 9 K St., Sacramento, soon lets contract 75-bed Mercy Hospital, $1,000,000. Harry J. Devine, 1012 J St. Sacramento, archt. CD 3/11/46.

▲ **Calif., Sacramento**—APARTMENT—Von P. Busby and Ernestini H. & Jas. H. Tredinnick, 1015 21 St., soon lets contract apartment on 8 acre site, Maconi and Wright Sts., near here, $1,200,000. Rickey & Brooks, 2015 J St., archts.

Calif., Yosemite National Park—APARTMENT—Yosemite Park & Curry Co. Yosemite National Park, soon lets contract apartment for employees, garage bldg., etc. Spencer & Ambrose, 251 Kearny St., San Francisco, archt.

LOW BIDDERS—HEAVY CONSTRUCTION

Thomas Constr. Co., 4929 Hedges St., Fresno, Calif., Low Bidder, **$190,977,** rein.-con. box girder bridge across Cosumnes River, 4.8 mi. north of Plymouth, Amador and El Dorado Counties, CALIFORNIA State Div. Hys., P. Wks. Bldg., Sacramento, Calif. Bids May 23. CD 4/30.

Rice Brothers Inc., P.O. Box 1489, Marysville, Calif. Low Bidder, **$160,881,** plant mix surf. etc. 5.4 mi. between Biggs Rd. and Oroville Y, Butte Co., CALIFORNIA State Div. Hys., P. Wks. Bldg., Sacramento, Calif. Bids May 23. CD 5/4.

Harms Bros., 5261 Stockton Blvd., Sacramento, Calif., Low Bidder, **$156,714,** plant mix surf. 8.3 mi. between 5.8 mi. north of Colusa and Glenn Co. Line, Colusa Co. **Munn & Perkins,** Modesto, Calif., **$163,259** plant mix surf. 5 mi. between Cathay Junction and 5 mi. east in Mariposa Co., CALIFORNIA State Div. Hys. P. Wks Bldg., Sacramento, Calif. Bids May 23. CD 4/30.

† **P. Wks. Officer,** Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif., cancelled bids to have been opened May 23 paving areas at San Francisco Naval Shipyard, SAN FRANCISCO, CALIF. CD 5/2.

Huettig, Schromm & Bennett, Palo Alto, Calif., Low Bidder, **$108,735,** paving, walks, grading at Capuchino High School SAN MATEO CALIF. San Mateo Unified High School Dist., Delaware St. and Bellevue Ave., San Mateo, Calif. Bids May 23.

LOW BIDDERS—BUILDINGS

Harris Constr. Co., P.O. Box 109, Fresno, Calif., Low Bidder, **$530,424,** HEALTH CENTER primary bldg. at Fresno County General Hospital, FRESNO, CALIF. Fresno Co., Court House, Fresno, Calif. Philip S. Buckingham, 1927 Clinton Ave., Fresno, archt. Bids May 24. CD 5/2.

R. Pedersen & Son, 446 Clark St., Fresno, Calif., Low Bidder, **$344,975,** constr. Frank M. Lane Elementary SCHOOL, Recreation and Lowe Aves., FRESNO, CALIF. Fresno City Unified School Dist., 2348 Mariposa St., Fresno, Calif. Bids May 17. CD 5/8.

Hayward Union High School Dist., 22300 Foothill Blvd., Oakland, Calif., rejected bids May 17, Meek Junior High SCHOOL, HAYWARD, CALIF. New bids June 7. CD 5/2.

▲ **L. E. Dixon Co.,** 409 S. California St., San Gabriel, Calif. Low Bidder, **$3,975,380** communicable DISEASES UNIT at County General Hospital, LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. Bids May 29. CD 4/24.

▲ **Wm. C. Crowell Co.,** 170 E. California St., Pasadena, Calif. Low Bidder, **$1,033,200,** district OFFICE bldg. LOS ANGELES, CALIF. Los Angeles Co. Flood Control Dist., 751 S. Figueroa St., Los Angeles, Calif. Bids May 29. CD 5/8.

Wm. D. Rapp, 705 Bennett Ave., Santa Rosa, Calif. Low Bidder, **$445,527,** Bellevue Union SCHOOL south of SANTA ROSA, CALIF. Bellevue Union Elementary School Dist., Santa Rosa, Calif. Bids May 18. CD 5/8.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Geo. Miller Constr. Co.** and **Papac Constr. Co.,** 604 Montebello Blvd., Montebello, Calif. Contract Awarded, $1,045,743, sanitary sewers in Union Ave. Sanitation Dist., BAKERSFIELD, CALIF. Kern Co., Court House, Bakersfield, Calif. Bids May 28. CD 5/1.

CONTRACTS—BUILDINGS

▲ **Elmer J. Freethy,** 1432 Kearney St., El Cerrito, Calif., Contract Awarded, **$1,006,277,** HOSPITAL WING addn., SAN JOSE, CALIF. San Jose Hospital, 14 and E. Santa Clara St., San Jose, Calif. Bids Apr. 26, awarded May 25. CD 5/4, under LB.

ALASKA

LOW BIDDERS—HEAVY CONSTRUCTION

† **Alaska** — TUNNEL—B.A. 6/25 — Bureau Reclamation, Dpt. Interior, Palmer, construct Eklutna Tunnel, Eklutna Project, approx. 30 mi. northeast of Anchorage, Spec. No. DC-34433; adv. ENR 6/14. CD 10/6/50.

† **Alaska** — BULK PETROLEUM STORAGE, etc. — B.A. 6/27—U. S. Eng., New Washington Hotel, Seattle, Wash., bulk petroleum storage and handling facilities at Eielson Air Force Base, Inv. No. S95-507-51-92. Plans deposit $50. CD 2/15.

† **Alaska, Whittier**—OUTSIDE UTILITIES—B.A. 6/27—U. S. Eng., New Washington Hotel, Seattle 1, Wash., outside utilities, Inv. No. S 95-507-51-113. $900,000. Plans deposit $50. CD 3/14.

CONTRACTS—BUILDINGS

† **J. B. Warrack Co.,** Securities Bldg., Seattle 1, Wash., Contract Awarded. $815,000. 115x280 ft. steel frame general REPAIR SHOP, ANCHORAGE, ALASKA. The Alaska Railroad, Dpt. Interior, Anchorage, Alaska. Bids May 22. CD 5/31, under LB.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Alberta—B.A. 6/22—Benn Russell, dir. Water Resources, Terrace Bldg., Edmonton, Alta., 27 mi. distributory canals and appurtenant structures 2, rein.-con., timber chutes and other structures. Plans deposit $10. CD 12/3/43.

Ont., Oshawa—B.A. 6/22—J. E. Hare, city clk., Oshawa, two 33 ft. span rein.-con. bridge with 33 ft. roadway and sidewalk over Oshawa Creek. Approx. $60,000. W. T. Dempsey, c/o owner, engr. CD 4/26/50.

Que. Montreal — CONTROL SYSTEMS — B.A. 6/23 — Executive Committee, City Hall, traffic control systems at 78 intersections. Plans deposit $25. H. A. Gibeau, City Hall, city engr.

BIDS ASKED—BUILDINGS

Yukon Territory, Whitehorse—MESS HALL, etc.—B.A. 6/19—D. W. Laird, engr. Defence Constr. Ltd. 400 Kensington Bldg., Winnipeg Man., 50-man mess hall and constr. one standard upper ranks mess hall for 500 men at Army Camp. Approx. $700,000.

Ont., Peterborough — SCHOOL — B.A. 6/21 — J. Black, Separate School Bd., Peterborough, Ont., structural steel, St. Peter's School, Reid and Brock Sts., Approx. $325,000. J. H. Haffa, 294 Ontario St., Toronto, Ont., archt. CD 11/24/44.

Ont., Sault Ste. Marie—SCHOOL—B.A. 6/22—Sault Ste. Marie Bd. Educ., Central School, Sault Ste. Marie, 100x100 ft., 40x120 ft. wing, high school addn. $395,000. Plans deposit $25. John B. Parkin Assoc., 717 Church St., Toronto, archts.

CONTRACTS—HEAVY CONSTRUCTION

Evans Constr. Co. Ltd., and **Continental Constr. Co.,** Lethbridge Alta. Contract Awarded. $698,009, HY. No. 1 work, Suffield to Dunmore, ALBERTA. Dpt. Hys. Edmonton, Alta. CD 5/28, under LB.

Pacific Pile Driving Co. Ltd., 805 View St., Victoria, B. C. Contract Awarded. $384,030, reconstr. jetty at Naval Dockyard, ESQUIMALT, B. C. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids May 23. CD 5/9.

Atlantic Constr. Co., 163 Upper Water St., Halifax, N. S. Contract Awarded. $128,570, water mains and 5 m.g. reservoir, DARTMOUTH, N. S. Town Council, Dartmouth, N. S. Awarded May 28.

Acme Constr. Co. Ltd., 45 Canterbury St., St. John, N. B. Contract Awarded. $143,600, ADMINISTRATION bldg., ST. JOHN, N. B. Municipal Airport Comm., St. John, N. B.

Bennett-Pratt Ltd., 5 Maple Leaf Drive, Weston, Ont. Contract Awarded. Approx. $500,000, engineering bldg. and N.C.O's quarters at Camp Borden Royal Canadian Air Force Station, CAMP BORDEN, ONT. Defence Constr. Ltd., 441 Queens Quay W., Toronto, Ont. Bids May 3. CD 4/24.

H. O. Hipel Co. Ltd., 307 Hespeler St., Preston, Ont. Contract Awarded. $213,000, 122x228 ft., 30x113 ft., concrete, brick arena, ST. THOMAS, ONT. Memorial Centre A'sn., City Hall, St. Thomas, Ont. V. J. Blackwell & Assocs., 284 Dundas St., London, Ont., archts. CD 3/5/47.

H. J. O'Connell Ltd., 606 Cathcart St., Montreal, Que. Contract Awarded. Aprox. $600,000, clearing, grading site of proposed airdrome between Senneterre and Mont Laurier, LAC DES LOUPS, QUE. Dpt. Transport, Ottawa, Ont. CD 5/2.

A. Pepin Ltd., 155 W. St. Charles St., Longueuil, Que. Contract Awarded, $150,000, concrete curbs, sidewalks, street paving, LONGUEUIL, QUE. Municipality, Longueuil, Que. Jacques Cartier, 5500 Des Plaines Ave., Montreal, Que., engr.

CONTRACTS—BUILDINGS

Textile Weavers Ltd., 1665 Third Ave., Grand' Mere Que., Day Labor, $300,000 second addn., 120x400 ft., concrete, brick textile FACTORY, GRAND'MERE, QUE.

▲ **Anglin-Norcross Quebec Ltd.**, 892 Sherbrooke St. W., Montreal, Que. Contract Awarded. Approx. $3,000,000. 1 story, 480x480 ft. PLANT and 60x480 ft. OFFICE, both rein.-con., structural steel frame, brick, block, LONGUEUIL, QUE. Canadian Pratt-Whitney Aircraft Co. Ltd., 150 Lorne Ave., Longueuil, Que. CD 5/18.

Douglas Brenner Constr. Ltd., 5965 Monkland St., Montreal, Que. Contract Awarded. Approx. $350,000. recapping PLANT at Ferrier St., MONTREAL, Que. Goodrich Rubber Ltd., 251 King St., Kitchener, Ont. Sydney & C. S. Comber, 4444 Sherbrooke St. W., Montreal, Que., archts. CD 1/19.

PROPOSED PROJECTS

WATER SUPPLY

Mass., Woburn—City, Mayor's Office, City Hall, reconstr. water sys., pumping station, water mains, $100,000.

Mich., Greenville—City, C. Ferris Petersen, supt. Pub. Wks. Dpt., water sys., incl. distr. mains, pumping facilities, 1,000,000 gal. steel water tank. $675,000. Alfred C. Hansen, Muskegon, consult. engr.

N. C., Henderson—City, voted bonds May 1, WW. $825,000. Wm. C. Olsen, 5 Exchange Pl., Raleigh, consult. engr. CD 2/19.

Tex., Victoria—City, WW sys. extens., imprvs. $100,000.

SEWERS, WASTE DISPOSAL

Ark., Little Rock—Sewer Improvement Dist. 59, c/o Kenneth W. Lefever, consult engr., Gazette Bldg., Little Rock, sewers in Grandview and Parkview Addns. $100,000.

Calif., Mountain View—City, City Hall, voted $365,000 bonds, sewer construction. CD 9/28/50.

▲ **Ky., Louisville**—Metropolitan Sewer Dist., 414 W. Jefferson St., 5 mi. sanitary sewers from proposed General Electric Plant to Louisville, $1,000,000, L. S. Vance, engr. CD 7/13.

Mich., Lapeer—City, City Comn., sewerage sys., sewers, appurtenances, various streets. $200,000. Edwin M. Orr, 22148 Michigan Ave., Dearborn, consult. engr.

Tex., Fort Worth—Rosedale Park Apartments, 5117 E. Rosedale St., sanitary sewers, $60,000; storm sewers, open drainage, earthwork, $65,000, in new area Rosedale Park sub-division.

Tex., Houston—Hamilton, James & Little, 1307 Northwood St., storm sewers, $60,000; sanitary sewers, $65,000, Outpost Estates, north of Clay Rd. Roy M. Pitner, Jr., 1810 Travis St., consult. engr.

Tex., Victoria—City, sanitary sewerage sys. extens., imprvs. $125,000.

Ont., North Bay—City, T. A. Frair, clk., sewage disposal plant. Approx. $150,000. Kilborn Eng. Co. Ltd., 36 Park Lawn Rd., Toronto, engr. CD 12/31/45.

▲ **Ont., Toronto**—Scarborough Public Utilities Comn., R. Harris, secy., 1666 Kingston Rd., 5 mi. 30 and 15 in trunk sanitary sewers from Pharmacy Ave. disposal plant to Lawrence Ave., following Course of Massey Creek Ravine. Approx. $1,000,000. Proctor Redfern & Laughlin, 11 Jordan St., engrs. CD 9/12/47.

BRIDGES

Ill., Aurora—City, City Hall, bridge across Fox River. $750,000.

Mich., Adrian—City, $210,000 bond election June 26, bridges over Wolf Creek.

▲ **Mo., St. Louis**—Terminal Railroad Assoc. of St. Louis, 1800 Market St., Zone 3, bridge-type overpasses across 18 St. and Clark Ave. to house belt conveyors carrying mail from main post office to Union Station and also to Railway Express Agency bldg. on Clark Ave. east of 18 St. $3,000,000.

STREETS AND ROADS

Ill., Cicero—Town, resurfacing streets on 61, 60, 56, 58, 53 and 57 Courts. $300,000. Deleuw Cather & Co., 150 N. Wacker Dr., Chicago, Zone 6, consult. engrs.

▲ **Ky., Louisville**—City, imprv. streets. $1,500,000. Hazelet & Erdal, Heyburn Bldg., consult. engrs. CD 11/10.

▲ **New York**—State Dpt. P. Wks., Albany,

Otsego Co.—4.3 mi. arterial route sys. in Oneonta. $2,144,600.

Wash., Seattle—City, County-City Bldg., paving Oregon St., et al, $64,462; alley in Block, 9 Greenwood Park 2nd Addn., et al, $36,204. R. W. Finke, city engr.

Saskatchewan—Dpt. Natural Resources, Parliament Bldgs., Regina, Sask., highway from Blake Bay on Lake Athabasca to Ace Lake site of new uranium mine along Crackingstone River to be known as Uranium Rd. $150,000.

EARTHWORK, WATERWAYS

Calif., Madera—City, Madera Irrigation Dist., Hugh, G. Rodgers, secy., Madera, Calif., water supply sys. and distr. sys. CD 11/13/46.

AIRPORTS

† **Ariz., Chandler**—RUNWAY EXTENS., etc.—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., runways exten., parking aprons, etc. at Williams Air Force Base, $2,417,000. Yost & Gardner, Heard Bldg., Phoenix, consult. engrs.

▲† **Kan., Olathe**—AIRPORT IMPRVS.—Ninth Naval Dist., Great Lakes, Ill., addnl. expansion Olathe Naval Air Station. $6,246,000. CD 2/15.

▲† **N. Y., Brooklyn**—RUNWAYS, etc.—Third Naval Dist., 90 Church St., New York, Zone 7, lengthening runways, 2 radio towers, parking areas, barracks, messhall, garage and maintenance bldgs. at Floyd Bennett Field. $2,681,000.

† **Tex., Amarillo**—COMMUNICATIONS AND TELEPHONE—U. S. Eng., Box 61, Tulsa 2, Okla., communications and telephone for Amarillo Air Force Base. Approx. $100,000. CD 2/2.

▲† **Tex., Waco**—AIR BASE—U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, plans by H. B. Gieb & Assoc., 2719 McKinney St., Professional Bldg., Dallas, and Yandell, Cowan & Love Eng. Co., Danciger Bldg., Fort Worth, archts.-engrs., runways, taxiways, parking areas extens., imprvs., $1,500,000; addnl. misc. construc., warehousing, hangars, allied bldgs., $1,050,000; WW. $200,000. CD 2/1.

LATIN AMERICA

Mexico, Mexico City—Nemesio Arce, Cerrada de San Miguel, 3, Mexico City, plans safe and strong box factory. $350,000.

Mexico, Ticul-Thul—Mexican Govt., Sira. de C. y O.P., Mexico City, plans 117 kilometer road. $578,000.

▲ **Peru, Chimbote**—Republic of Peru in co-operation with French Syndicate, Lima, plans iron and steel plant, 60,000 tons per day. $10,000,000.

PUBLIC BUILDINGS

▲ **Ala., Sylacauga** — HOUSING — Sylacauga Housing Auth., Sylacauga, plas by Chas. H. McCauley, Jackson Bldg., Birmingham, 214 housing units. $1,750,000. CD 1/23/50.

Ark., North Little Rock—SCHOOL—North Little Rock School, School Bd., North Little Rock, plans by Bruggeman, Swaim & Allen, Gazette Bldg., Little Rock, Junior High School. $300,000.

▲ **Calif., Burlingame**—SCHOOL—City, City Hall, voted $1,000,000 bonds, Mills Estate School. CD 4/30.

Calif., Fresno—SCHOOL—Fresno City Unified School Dist., Fresno, plans by David H. Horn & M. D. Mortland, 1244 O St., Fresno, Yosemite Junior High School. $435,000. 7/31/50.

Calif., Martinez—HOSPITAL—Bd. Supervs., Contra Costa Co., Hall of Records, plans by Masten & Hurd, 526 Powell St., San Francisco, county hospital addns. $400,000. CD 5/11/48.

▲ **Calif., Redwood City**—SCHOOL—Sequoia High School Dist., Redwood City, voted $1,500,000 bonds, constr. San Carolos and Belmont High School. CD 5/31/49.

Colo., Alamosa—SCHOOL—Bd. Educ., Alamosa Pub. Schools, plans by Alfred Watts Grant, archt. and engr., 306 Flatiron Bldg., 1669 Broadway, Denver, (1st unit) 2 story Junior High School incl. gymnasium and auditorium, offices and addns. to Central and Boyd Grade Schools, $360,000.

Colo., Greeley—SCHOOL—Greeley Bd. Educ., Greeley, Junior High School; Grade School; Maplewood Grade School addnl.; remodeling Horace Mann School as an admin. bldg.; Cameron School addn., imprvs. $980,000. CD 3/18/48.

Colo., Julesburg—SCHOOL—School Dist. 53, Sedgwick Co., plans by Henry A. Koch, archt. and engr., 406 Chamber of Commerce Bldg., Denver, 1 story, brick school. $300,000.

Ga., Atlanta—PLANT—State Agricultural Dpt., State Capitol, milk dehydrating plant. $400,000.

Ga., Blakeley — HOUSING — Blakely Housing Auth., Blakely, plans by H. L. Holman, Jr., Ozark, Ala., 45 housing units. $500,000.

Idaho, Blackfoot — LAUNDRY — Idaho State Hospital, Blackfoot, plans by L. E. Stalker, Idaho Falls, laundry. $120,000.

▲ **Ill., Belleville**—SCHOOL—School Dist. 118, E. L. Allen, supt., defeated 1,000,000 bonds, Douglas School and Jefferson, Dewey Union and Henry Raab School addns. $1,080,000. Project postponed indefinitely. CD 5/16.

Ill., Brookfield—SCHOOL—School Dist. 103, 41 St. and Route 66, plans by Louis N. Balluff, 35 E. Wacker Dr., Chicago, Zone 1, Lincoln School. $450,000.

▲ **Kan., El Dorado** — SCHOOLS — Bd. Educ., voted $1,250,000 bonds, new schools and school addns. CD 5/22.

Kan., Haven—SCHOOL—Bd. Educ., Haven, plans by Mann & Co., Hutchinson, school. $350,000.

▲ **La., Lake Charles**—SCHOOL—City School Bd., rebuild Lake Charles High School. $1,000,000.

▲ **Mass., Boston**—HOUSING—City of Boston Housing Auth., 230 Congress St., plans by John M. Gray Co., 175 High St., twelve bldgs., fifty-eight 3 and 7 story, bsmnt., brick housing units, Proj. PHA Mass. 2-14, Mission Hill Exten., Prentis-Parker and Ruggles Sts. $6,876,535.

▲ **Mass., Malden**—HOUSING—City of Malden Housing Auth., R. Graham, dir., 90 Plainfield Ave., plans by Arland A. Dirlam, 673 Boylston St., Boston, two hundred and fifty 2 story, bsmnt., 24x76 ft., housing units, Exeter Line, $2,500,000, Stewart Assoc., Inc., 38 Memorial Dr., Cambridge, consult. engr.

Mass., Westfield—SCHOOL—City, School Dpt., Dr. T. J. Abernathy, supt., Broad St., plans by Bernhard Dirks, Montague, 1 story, bsmnt. school, Franklin St. $400,000.

▲ **Mich., Adrian**—SCHOOL—Bd. Educ., $2,500,000 bond election June 26, school.

Mich., Flint—POWER PLANT—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, plans by O'Dell, Hewlett & Luckenbach, 2300 Dime Bldg., Detroit, 1 story, brick, concrete power plant, Michigan School for the Deaf. $500,000. CD 2/2.

Mo., Waverly—SCHOOL—Santa Fe Reorganized School Dist. 8, Waverly, plans by V. P. Terrill, 1016 Baltimore Ave., Kansas City, Mo., school, $300,000.

▲ **Neb., Hastings**—SCHOOLS—Bd. Educ., Hastings, defeated $1,650,000 bonds, schools. CD 4/9.

N. J., Chatham—SCHOOL—Bd. Educ., 52 Fairmont Ave., plans by Fred A. Elsasser, 2013 Morris Ave., Union, 1 story School, Washington and Watchung Aves. $350,000. CD 12/4/50.

N. J., Moorestown—HOUSING—Moorestown Housing Auth., Moorestown, plans by Henry W. Petty, 141 Chestnut St., housing, $400,000. CD 2/2.

† **N. M., Alamogordo**—U. S. Eng., P.O. Box 1538, Albuquerque, 32x261 ft., steel, acid and aniline storage bldgs., 37x71 ft., change house; 30x60 ft. booster inspection bldgs, 30x60 ft. solid fuel conditioning bldg., continuity check stand, 115 cu. yd. of concrete, misc. grading.

N. C., Chapel Hill—PSYCHIATRIC UNIT—State Hospital Bd. Control, Raleigh, N. C., plans by H. Raymond Weeks, Durham, psychiatric unit at University of North Carolina. $900,000. CD 10/4.

N C., Morganton—COURT HOUSE, etc.—Burke Co. Bd. Comrs., Morganton, plans by Henry I. Gaines, 1025 Hendersonville Rd., Asheville, court house and office. Over $300,000. Harry A. Boggs, Morganton, engr. CD 6/30/47.

▲ **N. C., Raleigh**—WOMENS PRISON—State Hy. & Pub. Wks. Comn., Raleigh, imprvs. at womens prison. $1,120,500.

▲ **Pa., Phila.**—GARAGE—Phila. Parking Auth., Packard Bldg., plans by Simon & Boulware, 123 S. Broad St., garage. $2,500,000. CD 7/17/47.

R. I., Pawtucket—HOUSING—Alphage Ferland & Sons, 700 Benefit St., 50 ranch type houses and garages, in Darlington Sect. $650,000.

▲ **R. I., Providence** — HOUSING — Providence Housing Auth., J. P. Carroll, chn., 263 Chad Brown St., R. I. 1-5, 330 three story, brick, concrete houses, Manton Ave. $1,000,000. Charles A. McGuire & Assoc., 1015 Turks Head Bldg., consult. engrs.

S. D., Broken Bow—SCHOOL—Bd. Educ., voted bonds May 22, South Side School. $300,000.

Tex., Baytown—SCHOOL—Goose Creek Independent School Dist., Goose Creek, voted bonds, elementary school. $300,000. CD 5/9.

Tex., Falfurrias—HOSPITAL—Brooks Co. Court House, voted $250,000 bonds May 19, hospital. $300,000. Wyatt C. Hedrick, 5201 Fannin St., Houston, archt. CD 3/12.

Tex., Goose Creek—SCHOOL—Goose Creek Independent School Dist., voted bonds, school. $300,000. CD 5/9.

Tex., Killeen—HOUSING—Killeen Housing Auth., Killeen, plans by Christensen & Christensen, 709 N. St. Paul St., Dallas, Tex. 79-1, 12 two story housing units. $300,000. CD 5/8/50.

Tex., Mission—HOSPITAL—City, plans by Wyatt C. Hedrick, engr. and archt., 5201 Fannin St., Houston, 40-bed municipal hospital. $550,000. CD 3/27.

▲ **Tex., Pasadena** — SCHOOLS — Pasadena Independent School Dist., Pasadena, voted bonds, 16-classroom addn. to Senior High School, $400,000; elementary school, $300,000; S. Houston Junior High School and Golden Acres School imprvs., remodeling, $400,000. Lloyd & Morgan, 4605 Montrose Blvd., Houston, consult. engrs. CD 5/16.

▲ **Tex., Pasadena**—HIGH SCHOOL—Pasadena Independent School Dist., Pasadena, voted bonds, Tex 51-C-45-A. New Junior High School. $1,500,000. Lloyd Morgan, 4605 Montrose Blvd., Houston, archt. CD 5/16.

† **Tex., Wichita Falls**—POWER FACILITIES—U. S. Eng., Box 61, Tulsa, 2, Okla., electric power facilities. $150,000.

† **Va., Fort Lee**—OFFICERS QUARTERS—U. S. Eng., foot of Front St., Norfolk, two bachelor officers quarters, Eng 44-110-51-10. Plans deposit $10.

▲ **Wash., Medical Lake**—SCHOOL—School Bd., Medical Lake, plans by J. Villesvik, Yakima, school $1,000,000. CD 5/2.

Wash., Sedro-Woolley—SCHOOL—School Bldg., Sedro-Woolley, school, $343,500. CD 11/8/45.

Ont., Islington—SCHOOL—Bd. Educ., Cordova Rd., school, Royal York Rd. $900,000.

Ont., Toronto—UTILITIES—Scarborough Public Utilities Comn., 1666 Kingston Rd., plans by J. H. W. Bradfield, Terminal Bldg., 2 story, bsmnt., 40x180 ft., 30,000 sq. ft., utilities bldg., 50x118 ft., structural steel, brick garage. $400,000.

Que., Montreal—SCHOOL—Catholic School Comn., 117 W. St. Catherine St., school for Parish of Notre Dame du Foyer, $350,000.

COMMERCIAL BUILDINGS

Calif., Claremont—LIBRARY—Claremont College, Claremont, plans by J. E. Stanton, 627 S. Carondelet St., Los Angeles, 4 story, rein.-con. library. Approx. $750,000.

Colo., Denver—OFFICE, etc.—Denver Chicago Trucking Co., Inc., W. J. Robinson, pres., 2501 Blake St., home office and terminal bldg., North Colorado Blvd. $800,000.

Conn., Milford—RESIDENCES—Lewis J. McDermott, 122 Melba Pond Point, 100 modern ranch type residences Anderson Ave., Woodmont Section Development $500,000.

▲ **Conn., Stamford**—APARTMENTS—First Stamford Corp., 1122 Main St., two 6 story, 337 unit apartment, Strawberry Hill New Development, $1,000,000.

Fla., Miami—APARTMENT UNITS—Surprise Lake and Lesrod Apartments, c/o Norman M. Giller, 1575 Washington Ave., Miami Beach, 80 apartment units, $450,000.

▲ **Ill., Chicago**—APARTMENT—Community Development Trust, 39 S. State St., Chicago 3, Ill., plans by Holsman, Holsman, Klekamp & Taylor, 39 S. State St., 12 story 120-unit, apartment bldg., incl. 2 tower co-operative store, office, skip stop elevators 100 E. Erie St., Chicago, Zone 11, $2,000,000.

Kan., Hutchinson—HOSPITAL—St. Elizabeth's Hospital, Hutchinson, plans by Mann & Co., Hutchinson, hospital addn. $500,000. CD 4/20/49.

Mass., Pittsfield—Y.M.C.A. BLDG.—Pittsfield Y.M.C.A., E. M. Preble, genl. secy., 292 North St., modernize and remodel Y.M.C.A. bldg. $300,000.

Mass., Worcester—BANK—Worcester County Trust Co., 466 Main St., plans by Thomas M. James Co., 101 Newbury St., Boston, 1 story, bsmnt., drive-in branch bank, Park Ave. between Chandler and Pleasant Sts. $300,000. CD 5/10.

Mich., Ann Arbor—SEMINARY—Holy Ghost Fathers, Frederick T. Heoger, dir., plans by Chales D. Hannan, Farmington, brick, masonry seminary bldgs., school unit, chapel and dormitories, Proj. M-17, $500,000.

▲ **Mich., Lansing**—HOSPITAL—Edward W. Sparrow Hospital Assn., 1215 E. Michigan St., plans by O. J. Monson, 409 Busch Bldg., hospital addn., incl. fourth floor addn. on wings, $1,700,000.

Mo., St. Louis Co.—COUNTRY CLUB—Old Warson Country Club, c/o William G. Weld, 9936 Litzsinger Rd., Ladue, St. Louis, Zone 24, country club development, incl. clubhouse, golf course, etc. $600,000.

▲ **N. Y., Kew Gardens**—APARTMENT—Briarwood Gardens Co., c/o Philip Birnbaum, archt., 12 E. 48 St., New York, Zone 17, 6 story, 70x158 ft. apartment, Pershing Crescent between Daniels St. and 84 Dr. $1,500,000.

O., Columbus—HOUSING—Westlake & Assoc., 797 Frebis Ave., masonry multi-family dwellings, on 76 acre tract, Sullivant Ave. and Demorest Rd.

▲ **Pa., Phila.**—RESIDENTIAL DEVELOPMENT—Murray Person, Western Saving Fund Bldg., residential development, Kights and Byberry Rds. $6,000,000.

Tenn., Memphis—CHURCH—Central Christian Church, 1821 Peabody Ave., plans by E. L. Harrison, 81 Madison Bldg., 4 story, concrete, steel faced brick church. $400,000.

▲ **Tex., Fort Worth**—APARTMENTS—Rosedale Park Apartments, 5117 E. Rosedale St., plans by Charles T. Armstrong, Majestic Bldg., Proj. 1, twenty-five 25x51 ft. frame bldgs. for total 50 apartments; Proj. 2 25 two story bldgs., for total 200 apartment units, $400,000; Proj. 3, 25 one and two story frame bldgs., for total 200 apartment units, concrete slab fdn., $400,000.

▲ **Tex., Houston**—DWELLINGS—Hamilton, James & Little, 1307 Northwood St., Proj. 1, 50 masonry dwellings, $750,000; in Outpost Estates, off Campbell Rd.; Proj. 2, 75 one and two story brick dwellings, $1,125,000, in Outpost Estates, off Clay Rds.

Tex., San Angelo—OFFICE—Standard Building & Equipment Co., San Angelo, masonry office, $437,260.

▲ **Wash., Renton**—HOUSES—A. Balch, 8050 35 Ave. N. E., Seattle, 100 houses in Highlands addn. $8,500,000.

▲ **Wis., Milwaukee**—HOUSING—Forman Constr. Co., 229 E. Wisconsin Ave., Zone 2, 500 family housing, $5,000,000.

▲ **Wis., Milwaukee**—STORE—Plankington Trust, 161 W. Wisconsin Ave., Zone 3, 2 story store addn., $2,500,000. J. C. Penney Co., Inc., lessee.

INDUSTRIAL BUILDINGS

Calif., Alameda—PLANTS, etc.—Pennzoil Co., 1250 17 St., San Francisco, distr. plant, tank farm, pipe lines, Grand St. and Clement Ave. $300,000.

▲ **Calif., El Segundo**—FACTORY—Douglas Aircraft Co. Inc., 827 Lapham St., 1 story, steel frame, factory. $2,500,000.

▲ **Colo., Denver**—BUS TERMINAL—National Trailways Bus System, 17 and Tremont Sts., bus terminal, incl. coffee shop, cocktail lounge, etc., at 17 St., and Broadway. $1,500,000.

Conn., Hamden—FACTORY—Safety Car Heating & Lighting Co., 1187 Dixwell Ave., plans by Harold H. Davis, 29 Whitney Ave., New Haven, 1 story, 20,000 sq. ft., concrete, steel factory addn. $100,000.

Ill., Aurora—PLANT—Stoner Mfg. Co., 3289 Ale St. 30,000 sq. ft. stampings sheet metal plant addn. $350,000.

Ill., Joliet—PLANT UNIT—Clearing Machine Co., 6499 W. 65 St., Chicago, Zone 38, plans by John S. Cromelin, 6455 S. Central Ave., Chicago, Zone 38, 40,000 sq. ft. first plant unit, $500,000.

Ia., Waterloo—PLANT—Lewis Machine Works, Waterloo, plans by D. B. Toenges, Waterloo, 132x168 ft., machine work plant and 72x104 ft., annex, $176,895. CD 5/4.

▲ **Ky., Owensboro**—DISTILLERY—Glenmore Distilleries, Inc., Owensboro, distillery addn. $3,500,000.

▲ **Minn., St. Paul Park**—PLANT—Northwestern Refining Co., Elmer Erickson, secy-treas., St. Paul Park, refining plant alongside existing plant. $2,000,000.

Mo., Overland (St. Louis 14, P. O.)—PLANT—Baldor Electric Co., 4300 Duncan Ave., St. Louis, Zone 10, plant on 10 acre tract on Warson Rd. at Rock Island R. R. tracks. $100,000.

Mo., St. Louis Co.—PLANT—Wagner Electric Corp., 6400 Plymouth St., St. Louis, Zone 14, processing plant for mfg. and packaging of hydraulic brake fluid used in automotive industry on 52 acre tract bordering Hazelwood and Lally Aves., near Berkeley City and Village of Hazelwood.

N. J., Camden—INDUSTRIAL—Wickes Engineering & Constr. Co., 12 and Ferry Ave., industrial bldg. $250,000. Charles H. Wolf, 112 S. 16 St., Phila., Pa., consult. engr.

N. J., Princeton—FACTORY—Hunter Douglas Corp., 150 Broadway, New York, N. Y., plans by Fritz Nathan, 200 Central Park South, New York, N. Y., factory. $250,000.

▲ **N. M., Santa Fe**—PLANT, etc.—Southern Union Gas Co., Burt Bldg., Dallas, Tex., expans. plant units and gas lines. $2,750,000.

O., Troy—FACTORY—B. F. Goodrich Co., 500 S. Main St., Akron, aircrafts parts factory. $150,000.

▲ **O., Warren**—FACTORY—Packard Electric Div. of General Motors Corp., 8-127 General Motors Bldg., Detroit, Mich., factory expansion, construct 40,000 sq. ft. addn. to Plant B and 108,000 sq. ft. new building for employee facilities and administration, addnl. parking areas; rearrangement of present facilities. $1,500,000.

▲ **Pa., Phila.**—PLANT—The Budd Co., 24 St. and Hunting Park Ave., mfg. plant. Approx. $1,000,000.

Tex., Amarillo—SHOP—E. S. Cowie Electric Co., 700 Van Burne St., masonry electric shop, concrete slab fdn. $117,535.

▲ **Tex., Amarillo**—PLANT UNITS, etc.—Southern Union Gas Co., Burt Bldg., Dallas, expansion plant units and gas lines, $1,500,000.

Tex., Dallas—SHOP—Liberty Iron & Metal Co., Industrial Blvd. at Hines, scrap metal (press) baling shop. $250,000.

Tex., Denton—STORAGE—J. C. Oliver, Jr., Tyler, masonry telephone storage and equip. bldg. $157,215.

▲ **Tex., Longview**—PLANT—Petrolite Corp., Ltd., Laclede Bldg., St. Louis, Mo., plant mfg. chemicals, waxes, electrical dehydration and desalting equip. on 86-acre site. $1,500,000.

▲ **Tex., Marshall**—PLANTS—Stanolind Oil & Gas Co., Gulf Bldg., and Continental Oil Co., Oil and Gas Bldg., both Houston, gas processing plant, $1,000,000; field pipe lines gathering, $100,000, near here.

Tex., Texarkana—FREIGHT—American Truck & Trailer Sales Co., Texarkana, plans by George W. Edwards, 1509-A Cochran St., Dallas, masonry freight, $100,000.

Wash., Seattle—MILL—Seidelhuber Steel Rolling Mill Corp., 3693 Duwamish St., plans by H. Bittman, Securities Bldg., Zone 1, Wash., steel rolling mill, $900,000. W. O. Creighton, 8001 32 Ave., N. W., consult. engr. CD 5/24.

W. Va., McMechen—WAREHOUSE—Marx Toy Co., c/o Al Chapman, McMechen, rebuilding warehouse. Approx. $200,000.

▲ **Alta., Lindbergh**—FACTORY—H. R. Milner, 11618 100 Ave., Edmonton, factory. $3,000,000.

Alta., Taber—PLANT—Cornwall Canning Co., Taber, Alta., plans by Meech, Mitchell & Meech, 108 McFarland Bldg., Lethbridge, 1 story, 120x480 ft., CANNERY addn., and warehouse and 60x150 ft. offices, laboratories and staff quarters, $600,000.

Ont., Toronto—WAREHOUSE, etc.—Moyer School Supplies Ltd., 106 York St., plans by J. B. Parkin Assocs., 717 Church St., 1 story, 100x200 ft., brick, steel warehouse and office Snider and Schell Aves., in York Twp. Approx. $150,000.

UNCLASSIFIED

▲ **Ariz., Flagstaff**—GAS FACILITIES, etc.—Southern Union Gas Co., Burt Bldg., Dallas, Tex., expansion domestic gas facilities (pipe lines and gas plant units). $3,000,000.

▲ **Arkansas**—RURAL DISTRIBUTION LINES—Arkansas Valley Electric Co-operative, Ozark, Ark., Project ARK 13, 490 miles rural distr. lines and other systems imprvs. $1,040,000. H. B. Gieb & Assoc., Ozark, consult. engrs. CD 2/2/50.

Michigan—RURAL DISTRIBUTION LINES—Presque Isle Electric Co-operative, Onaway, 200 mi. rural distr. lines, sys. imprvs., Presque Isle Co. $710,000. CD 9/23/48.

O., Youngstown—SWIMMING POOL—City, Tom Pemberton, park supt., Youngstown, repair and reconstruct Shady Run swimming pool and bathhouse. $100,000. James Ryan, city engr.

Pa., Bryn Mawr—GOLF COURSE, CLUBHOUSE—Overbrook Golf Club, 4710 Market St., Phila., plans by Savery, Scheetz & Gilmour, 1500 Walnut St., Phila., archt. for clubhouse alterations and addns., golf course. Approx. $500,000.

Tex., Brazoria—GAS DISTRIBUTION—City, bond election June 30, gas distr. sys. $150,000. Garrett Eng. Co., 5008 Almeda Rd., Houston, consult. engr.

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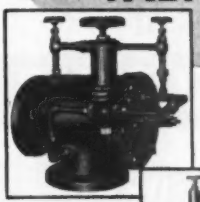
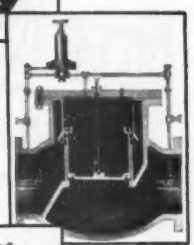
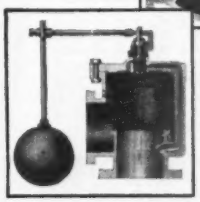


G-A Surge Relief Valve. Bulletin W-2 sent on request.



G-A Water Pressure Reducing Valve. Bulletin W-3 contains the technical information you want.



G-A Cold Water Float Valve. Bulletin W-5 will be of interest to you.

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CONSTRUCTION REPORTS–Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 18, Connecticut

STREETS AND ROADS

June 18, Connecticut June 19, Massachusetts

BIDS ASKED—BUILDINGS

▲ **Mass., New Bedford**—HOUSING—B.A. 6/21—City of New Bedford Housing Auth., 300 housing units, Proj. PHA 7-3, $3,000,000. Plans deposit $50. CD 1/15.

LOW BIDDERS—BUILDINGS

James Romeo & Assoc., 60 Washington St., Tuckahoe, N. Y. Low Bidder, **$875,000**, Senior High SCHOOL addn., Renshaw Rd., DARIEN, CONN. Town, Town Hall, Darien, Conn. Bids May 10. CD 5/2.

W. J. Megin, Inc., 51 Elm St., Naugatuck, Conn. Low Bidder, **$841,108**, Contr. 12, POWER PLANT STRUCTURES, WALLINGFORD, CONN. Boro of Wallingford Electric Wks., Washington St., Wallingford, Conn. Bids May 22. CD 6/6 under LB.

CONTRACTS—HEAVY CONSTRUCTION

M. F. Roach Co., 27 Central St., E. Bridgewater, Mass. Contract Awarded. **$688,905.** highway and bridge, Truro, MASSACHUSETTS. Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston, Mass. CD 5/29, under LB.

CONTRACTS—BUILDINGS

▲ **O. D. Purington Co., Inc.**, 171 Westminster St., Providence, R. I. Contract Awarded. **$1,084,811.** Memorial High SCHOOL, ADAMS, MASS. Town, School Dpt., Adams, Mass. Awarded May 25. CD 4/24, under LB.

▲ **C. L. Rugo & Sons, Inc.**, 80 Boylston St., Boston, Mass. Contract Awarded. **$2,723,000.** veterans' HOUSING Proj. 2-13, Beech and Washington Sts., Roxbury, BOSTON, MASS. City of Boston Housing Auth., 230 Congress St., Boston, Mass. Awarded May 24. CD 5/7, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 20, New York June 28, Pennsylvania

STREETS AND ROADS

June 20, Delaware, New York

June 28, 29, Pennsylvania

▲ † **N. Y., Westhampton** — FACILITIES — B.A. About 6/21—U. S. Eng., 80 Lafayette St., New York, Zone 13, addnl. facilities, Suffolk Air Force Base, Eng. 30-075-51-673. $5,000,000. Plans deposit $45. CD 3/29.

BIDS ASKED—BUILDINGS

▲ **Pa., Aliquippa**—HOUSING—B.A. 6/18—Beaver Co. Housing Auth., Beaver, 23 two story, bsmnt., 25x112 ft., brick veneer federal housing, Project Pa 14-9, $1,250,000. Plans deposit $50. Ackley, Bradley, Patterson & Burgemer, Sewickley, Pa., archts. CD 4/19.

▲ **Pa., Donora**—HOUSING—B.A. 6/18—Washington Co. Housing Auth., Washington, 2 story, bsmnt., brick veneer Federal Housing, Proj. Pa 17-4, $1,300,000. Plans deposit $20. J. Kenneth Myers, 524 4 Ave. Pittsburgh, archt. CD 1/18.

Pa., Frazer—SCHOOL—B.A. 6/18—East Whiteland Consolidated School Bd., Frazer, school addn., alterations. $800,000. James G. Ludwig, 225 S. 69 St., Upper Darby, archt.

Pa., Fredericktown—HOUSING—B.A. 6/18—Washington Co. Housing Auth., Washington, 2 story bsmnt., federal housing, Proj. Pa 17-3, $850,000. J. Kenneth Myers, 524 4 Ave., Pittsburgh, archts. CD 1/18.

LOW BIDDERS—BUILDINGS

▲ **Wark & Co.**, 1920 Sansom St., Phila., Pa. Low Bidder, **$1,373,300.** 1 story, 360x575 ft. steel, masonry PLANT expansion, MORTON, PA. Piasecki Helicopter Corp., 100 Woodland Ave., Morton, Pa. Bids May 15. CD 5/18.

▲ **Caristo Constr. Co.**, 26 Court St., Brooklyn, N. Y., Low Bidder, **$3,487,000.** HOUSING development, 3 story apartment type, 2 story row type, Bedford Dwellings, PITTSBURGH, PA. Pittsburgh Housing Auth., City County Bldg., Pittsburgh, Pa. Bids May 22. CD 4/24.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Peerless Constr. Co.**, 280 Madison Ave., New York 61, N. Y. Contract Awarded, **$1,258,000.** Contr. A, structures and equip. for work at Port Richmond Sewage Treatment Works, PORT RICHMOND, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Apr. 25. CD 5/1, under LB.

CONTRACTS—BUILDINGS

▲ **Atlantic City Electric Co.**, Kenutcky and Pacific Aves., Atlantic City, N. J. Separate Contracts, $6,500,000 generator PLANT, GREENWICH, N. J. Burns & Roe, 233 Broadway, New York, N. Y., engrs.

▲ **Mellon Stuart Co.**, 210 E. Parkway, N.S., Pittsburgh, Pa. Contract Awarded, **$2,756,631**, 6 story, 180x128x49 ft., brick, tile, steel HOSPITAL and NURSES HOME, BUTLER, PA. Butler County Memorial Hospital, Butler, Pa. Bids May 15. CD 4/23.

† **Hughes-Foulkrod Co.**, 1505 Race St., Phila., Pa. Contract Awarded, **$902,308.** X C I O Catapult and Mark 7 arresting gear and foundations, utility Bldg., and paving work, NOY 27768, PHILA., PA. Dpt. Navy, Phila. Naval Base, Phila., Pa. The Ballinger Co., 121 N. Broad St., Phila., Pa., archt.

▲ **Frank V. Warren, Inc.**, 925 W. Thompson St., Phila., Pa. Contract Awarded, **$1,500,000**, two 1 story and part 2nd story, 116x330 ft. block, structural steel COMPOUNDING BLDG. and 2 story, 42x140 ft., brick block and rein.-con. OFFICE bldg., PHILA., PA. Quaker Rubber Corp., Tacony and Comly Sts., Phila., Pa. Bids Apr. 3. CD 3/30.

▲ **Davis Constr. Co.**, 320 W. 24 St., Baltimore, Md. Contract Awarded. **$1,848,000.** 3 story, brick, concrete, cinder block Booker T. Washington Junior High SCHOOL, BALTIMORE, MD. City Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Awarded May 31. CD 5/22, under LB.

▲ **Benjamin Glazer**, 1708 Race St., Phila., Pa., Separate Contracts, **$1,000,000.** RESIDENTIAL DEVELOPMENT, Horsepond Rd., DOVER, DEL. Charles Brown, Dover, Del., engr.

Rupert Constr. Co., 3400 Lancaster Ave., Wilmington, Del. Contract Awarded, **$815,000**, HOSPITAL ADDN., MILFORD, DEL. Milford Memorial Hospital, Milford, Del. Bids May 5. CD 5/15, under LB.

▲ **E. I. du Pont de Nemours & Co.**, De Nemours Bldg., Wilmington 98, Del. Own Forces, **$11,000,000.** OFFICE, NEWARK, DEL. H. M. Gordon, c/o owner, supervision dir. constr. division. Project authorized by National Production Authority in Washington. (Correction—cost). CD 1/31.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

June 22, Kentucky June 27, Louisiana

June 29, Alabama

STREETS AND ROADS

June 22, Kentucky June 29, Alabama

▲† **S. C., Charleston**—BULK STORAGE—B.A. 6/20—U. S. Eng., Custom House, general facilities for air force bulk storage base, incl. grading, construct approx. 7,000 ft. of railroad, pump station, pipe line, electric wiring and fencing, at North Charleston. $1,500,000.

Miss., Greenwood—B.A. 6/26—City, piers for bridge across the Yazoo River. Total cost $825,000.

† **Ga., Savannah**—LIGHTING SYSTEM—B.A. 6/29—U. S. Eng., P. O. Box 889, Savannah, Ga., runway lighting system for new East-West Runway at Hunter Air Force Base. CD 4/11.

BIDS ASKED—BUILDINGS

▲ **Ga., Waycross**—HOUSING—B.A. 6/19—Waycross Housing Auth., Waycross, 148 housing units, $1,500,000. Plans deposit $50. Abreu & Robeson, 22 Marietta Street Bldg., Atlanta, archts. CD 6/23/50.

N. C., Morganton—HOSPITAL SERVICE—B.A. 6/20—State Hospitals, Bd. Controls, c/o Walter Hook & Assoc., archts., 303½ W. 4 St., Charlotte, hospital service bldg. $750,000. Plans deposit $30. CD 4/27/44.

▲ **Tenn., Nashville** — HOSPITAL — B.A. 6/20 — State Bd. Health, State Office Bldg., Middle Tennessee TB Hospital. $3,000,000. Marr & Holman, Stahlman Bldg., archts. CD 4/11.

▲ **Tenn., Nashville**—HOUSING—B.A. 6/20—Nashville Housing Auth., 701 6 St. S. 295 unit Cayce Homes addn. $2,569,000; 500 Negro units in North Nashville, $5,786,000. Plans deposit $40 each. CD 12/8/49.

▲ **Fla., Green Cove Springs**—HOUSING—B.A. 6/21—Dist. P. Wks. Office, Box 365, Naval Base, S. C., construct, manage and finance 392 military housing units at Green Cove Springs Naval Base. Plans deposit $100. CD 9/15.

Ga., Dawson—HOUSING—B. A. 6/21—Dawson Housing Auth., 75 housing units. $750,000. CD 10/27/50.

▲ **Ala., Auburn**—DORMITORY—B.A. 6/26—Alabama Polytechnic Institute, Auburn, women's dormitory. Approx. $1,000,000. Warren, Knight & Davis, Protective Life Bldg., Birmingham, archts. Extended date. CD 5/21.

▲ **Ala., Dothan**—HOUSING—B.A. 6/26—Dothan Housing Auth., Dothan, Project ALA 7-3, 148 housing units, $1,400,000. Pearson, Tittle & Narrows, First National Bank Bldg., Montgomery, Ala., archts. Bid date changed.

▲ **Ga., Valdosta** — HOUSING — B.A. 6/26 — Valdosta Housing Auth., Valdosta, 150 housing units, $1,500,000.

LOW BIDDERS—HEAVY CONSTRUCTION

† **John Yakimo**, 1839 Cedar Hill Ave., Dallas, Tex. Low Bidder. **$907,875.** riprap and derrick stone protec-

tie for gated portion of Morganza Control structure, Inv. 51-198, Pointe Coupee Parish, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, 9, La. Bids May 22. CD 5/8.

▲† **U. S. Eng.**, 300 Broadway, Louisville 9, Ky. rejected bids May 8, 4 St. and Buchanan St. Pump Plants in connection with floodwall, CIVENG 15-029-51-124, KENTUCKY. L. B. $1,083,290. Will readvertise. CD 5/11, under L.B.

LOW BIDDERS—BUILDINGS

▲ **Byck-Worrell Constr. Co.**, E. Bay St., Savannah, Ga. Low Bidder. $2,683,847, Projects GA 26-1 and GA 26-2, 420 HOUSING UNITS, LA GRANGE, GA. La Grange Housing Auth., La Grange, Ga. Bids May 29. CD 5/4.

▲ **Mac D. Saxon**, 6 Cherry St., Montgomery, Ala., Low Bidder, $1,347,493, HOUSING UNITS, LANNETT, ALA. Lanett Housing Auth., Lanett, Ala. Bids June 5. CD 5/8.

Pittman Constr. Co., Inc., 2925 Franklin Ave., New Orleans, La. Low Bidder. $964,833. 120 HOUSING units. Proj. Miss 5-4, BILOXI, MISS. Biloxi Housing Auth., Biloxi, Miss. Bids June 4. CD 5/15.

Barksdale & LeBlanc, P. O. Box 1567, Baton Rouge, La. Low Bidder. $886,200. LABORATORY-COLLEGE OF EDUCATION BLDG. at Louisiana State University, BATON ROUGE, LA. State, Bd. Educ., 355 Lafaso St., Baton Rouge, La. Bids May 25. CD 5/15.

▲ **W. R. Sproles Constr. Co.**, Kingsport, Tenn., Low Bidder, $1,663,000. 189 HOUSING units, KINGSPORT, TENN. Kingsport Housing Auth., Kingsport, Tenn.

CONTRACTS—HEAVY CONSTRUCTION

▲ **McLean Contg. Co.**, Fidelity Bldg., Baltimore, Md. Contract Awarded. $1,079,910. 2,092 ft. bridge and approaches over Piankatank River Route 225 to replace Twiggs Ferry, Middlesex and Mathews Counties, VIRGINIA. State Hy. Dpt., Richmond, Va. Bids May 22. CD 5/25, under LB.

▲ † **Diamond Constr. Co.**, 14 and M Sts. S. E., Wash., D. C., Contract Awarded, $1,065,402, install bulkhead ramp, 3 new piers and remove obsolete facilities at the Naval Amphibious Base, Little Creek, NORFOLK, VA. Pub. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. CD 3/26, under LB.

▲ **A. Stanley Mundy & Co.**, 76 Bolling Rd., Norfolk, Va. Contract Awarded. $2,338,723, raw water transmission main from Simonsdale to Lake Prince, NORFOLK, VA. City, City Hall, Norfolk, Va. Bids Mar. 14, awarded about Apr. 15. CD 3/23, under LB.

▲† **R. H. Wright & Sons**, Fort Lauderdale, Fla., Contract Awarded $1,228,000. AVIATION FACILITIES, Key West Naval Air Station, KEY WEST, FLA. P. Wks. Office, P. O. Box 365, Naval Base, Charleston, S. C. Bids May 17. CD 5/24, under LB.

▲† **George D. Auchter**, foot of E. 29 St., Jacksonville, Fla. Contract Awarded. $1,952,610. Mooring piers, steel pile bulkheads, marginal wharf for mooring destroyers, dredging, filling, grading and sub-grade, incl. paving access roads, in outlying station Mayport Carrier Base, NOY 22493 Spec. 25136, MAYPORT, FLA. Dpt. Navy, Box 365, Naval Base, Charleston, S. C. Bids May 23. CD 5/29, under LB.

▲† **F. J. Hilbert Sapp, Inc.**, West Palm Beach, Fla. Contract Awarded. $1,158,210, 14 BARRACKS and 2 mess halls at Pinecastle Air Force Base, ORLANDO, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids May 29. CD 5/7.

† **John Yakimo**, 1839 Cedar Hill Ave., Dallas, Tex. Contract Awarded. $907,875. rip rap and derrick stone protection for gated portion of Morganza Control Structure, Inv. 51-198, Pointe Coupee Paish, LOUISIANA, U. S. Eng., foot of Pytania St., New Orleans 9, La. Bids May 22, awarded May 30. CD 5/29, under LB.

▲† **Barksdale & LeBlanc**, Box 1567, Baton Rouge, La. Contract Awarded. $1,097,852. rehabilitation Lake Charles Air Force Base bldgs., Inv. Eng. 64-3-51-37, LAKE CHARLES, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. CD 5/28, under LB.

▲ **Farnsworth & Chambers Co.**, P. O. Box 74, Houston, Tex. Contract Awarded. $3,286,617. Proposal 17,-501 overpass on S. Broad Ave., NEW ORLEANS, LA. New Orleans Railroad Terminal Bd., 501 Saratoga St., New Orleans, La. Bids June 1. CD 4/23.

CONTRACTS—BUILDINGS

▲ **Wise Contg. Co.**, 8 and Grace Sts., Richmond, Va. RICHMOND, VA. Virginia Electric Power Co., 7 and Contract Awarded. Approx. $2,000,000. OFFICE addn., Franklin Sts., Richmond, Va. CD 5/24.

▲ **H. L. Cobie Constr. Co.**, Greensboro, N. C. Contract Awarded. $2,188,000. 400 unit Negro HOUSING, GREENSBORO, N. C. Greensboro Housing Auth., Greensboro, N. C. Bids May 29. CD 6/4, under LB.

▲ **Jordan Contg. Co.**, Andrews Rd., Columbus, Ga., Contract Awarded. $1,133,973, DAIRY PLANT, COLUMBUS, GA. Wells Dairies Co-operative, 2320-30 Wynnton Rd., Columbus, Ga. Bids May 16. CD 5/24, under LB.

▲ **Byck-Worrell Constr. Co.**, E. Bay St., Savannah, Ga. Contract Awarded. $2,878,000, 420 HOUSING UNITS, LA GRANGE, GA. La Grange Housing Auth., La Grange, Ga Bids May 29. CD 6/5, under LB.

▲ **Arthley Co.**, E. Bay St., Savannah, Ga. Contract Awarded. Approx. $1,000,000. Freight yard SHOPS, SAVANNAH, GA. Seaboard Air Line R. R. Co., W. D. Simpson, ch. engr., S. A. L. R. R. Bldg., Norfolk 10, Va.

Zaret Constr. Corp., 1901 West Ave., Miami Beach, Fla. Contract Awarded, $957,989, West Orlando Colored high SCHOOL, ORLANDO, FLA. Orange Co. Bd. P. Instruction, Orlando, Fla. Bids May 18. CD 5/24, under LB.

▲ **Precision Builders**, c/o Julian Lifsey, 850 Bayshore Blvd., Tampa, Fla. Owner Builds, $1,000,000, 175 HOMES, TAMPA, FLA.

Jack A. Roberts 1318 N. 23 St. and **The Steel Constr. Co.**, 720 4 Ave. S., Birmingham, Ala. Contract Awarded, $825,583, 92-unit Cooper Homes HOUSING, ANNISTON, ALA. Anniston Housing Auth., Anniston, Ala. Bids Apr. 24, awarded May 23. CD 4/30, under LB.

W. G. Wetmore, 649 N. Mill St., Jackson, Miss. Contract Awarded. $820,096. Jack C. Hardy Junior High SCHOOL, JACKSON, MISS. Jackson Municipal Separate School Dist., Jackson, Miss. CD 5/17, under LB.

Barksdale & LeBlanc, P. O. Box 1567, Baton Rouge, La. Contract Awarded. $886,200. COLLEGE OF EDUCATION LABORATORY, at Louisiana State University, BATON ROUGE, LA. State, Bd. Educ., 355 Lafaso St., Baton Rouge, La. Bids May 25. CD 5/31, under LB.

▲ **Ebasco Services, Inc.**, 2 Rector St., New York, N. Y. Contract Awarded. $4,000,000. construction-management PLANT, OWENSBORO, KY. Green River Steel Corp., Owensboro, Ky. CD 4/20, under CA.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
June 26, Wisconsin
STREETS AND ROADS
June 19, Ohio **June 20, Michigan**
June 26, Indiana, Wisconsin

▲ **Ill., Chicago**—B.A. 6/26—City, City Hall, Chicago, Zone 2, superstructure for 4 leaf trunnion bascule over Chicago River for West Superhighway Congress St. $2,000,000. Dpt. Subways & Superhighways, 20 N. Wacker Dr., Chicago, 6, Ill., and Dpt. Bridges & Viaduct, City Hall, Chicago, engrs. CD 5/24/49.

BIDS ASKED—BUILDINGS

Wis., La Crosse—INFIRMARY—B.A. 6/19—La Crosse Co., 3 story, 50x299 ft., rein.-con., steel, brick, tile infirmary addn. $650,000. Plans deposit $25. Boyum, Schubert & Sorenson, Hoeschler Bldg., La Crosse, archts. CD 9/6/50.

▲ **Mich., Lansing**—OFFICE—B.A.—6/20—**State, A. N. Langius**, dir, State Bldg. Dpt., Zone 13, 8 story, concrete steel state office, $5,000,000. Plans deposit $3. Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, archts. CD 9/18.

▲ **Wis., Union Grove**—CUSTODIAL, etc.—B.A. 6/21—State Dpt., P. Welfare, Madison, Wis., custodial bldg., kitchen and administration unit, 4 bldgs. each. 1 story, part bsmnt., irregular 28x120 ft., kitchen 1 story part bsmnt., 60x150 ft., rein.-con., steel, brick, $3,000,000. Plans deposit $50. R. C. Kirchhoff, state archt. CD 12/6/49.

Ill., Champaign—HOSPITAL—B.A. 6/22—Burnham City Hospital, 311 E. Stoughton St., 2 story, rein.-con., brick, stone city hospital. Berger, Kelley & Assocs., Lincoln Bldg., archts. CD 8/13/47.

Ill., Chicago—PLANT, etc.—Bids Asked—Burroughs Adding Machine Co., Grand Ave. and Lakeshore Dr., Zone 1, 2 story and part 3 story, 60,000 sq. ft. assembly parts, sales, display and service plant. $600,000. Shaw, Metz & Dolio, 208 S. LaSalle St., Zone 4, Ill., archts.

LOW BIDDERS—HEAVY CONSTRUCTION

Geo. Welch, Hotel Sherman, Chicago, Ill. Low Bidder, $321,956, c. conc. 12.16 mi. U. S. 24, Woodford Co.; $880,016, c. conc. 0.32 mi. Ill. 17, incl. 1 bridge, Livingston Co.***H. H. Gunther Constr. Co., 600 E. Main St., Galesburg, Ill., $69,792, bit. 4.44 mi. Ill. 399 and 401, Knox Co.***Scheflow & Monahan, 466 Main St., Glen Ellyn, Ill., $168,894, c. conc. 6.26 mi. Ill. 83, Du Page Co.***McCay & Hasse, 606 Yale Bldg., Hammond, Ind., $744,371, c. conc. 1.69 mi. Ill. 122, Cook Co.***Thompson Asphalt Co., 62 and McCambridge St., Madison, Ill., $161,130, bit. 6.3 mi. Ill. 4, 159, U. S. 66 and 67, Madison Co.***McCarthy Imprvt. Co., 601 Kahl Bldg., Davenport, Ia., $314,335, bit. 13.71 mi. U. S. 51, LaSalle Co.

C. L. Swords & Sons, 107 S. Jefferson St., Peoria, Ill., $90,410 gravel or crushed stone surf. 4.15 mi. on Ill. 389, Peoria Co.***Edwardsville Constr. Co., 309 Bank of Edwardsville Bldg., Edwardsville, Ill., $89,629 c. conc. wid'n. 6.16 mi. Ill. 4 and 159 and U. S. 66 and 67, Madison Co.***Walsh Oil Co., N. Broadway, Joliet, Ill., $78,282, bit. 5.061 mi. Ill. 303, Will Co.***Maclair Asphalt Co., Inc., 6000 Collinsville Rd. East St. Louis, Ill., $228,049, bit. resurf. 8.58 mi. Ill. 3 and 159 and U. S. 460, St. Clair Co.***Gietz-Melander Asphalt Co., 57 Douglas Ave., Elgin, Ill., $291,562, bit. resurf. 16 mi. Ill. 104, Adams Co.***R. A. & Sons, Inc., Tremont, Ill., $256,097, bit. resurf. 12.16 mi. U. S. 24, Woodford Co.

S. M. H. Constr. Co., 1500 N. Adams St., Peoria, 3, Ill., $167,141, c. conc. wid'n. 12.25 mi. Ill. 104, Adam Co.***Moss Constr. Co., Paris, Ill., $82,439, grading 4.9 mi. Ill. 17, Coles Co.***Robt. A. Black, Inc., 10 E. Erie St., Chicago, Ill., $190,909, c. conc. wid'n. 7.14 mi. Ill. 21, Cook Co.***E. T. Simonds Constr. Co., 202 W. Willow St., Carbondale, Ill., $66,286 c. conc. 0.02 mi. Ill. 14, Hamilton Co. ***Frank D. Feutz, 901 Tenbroeck St., Paris, Ill., $107,314, bit. 2.24 mi. Ill. 679, Edgar Co.***Vermillion Constr. Co., 914 E. Main St., Streator, Ill., $170,840, c. conc. wid'n. 10.91 mi. U. S. 6 and Ill. 23, LaSalle Co., ILLINOIS. State Div. Hys., Springfield, Ill. Bids May 25. CD 5/9 and 5/18.

Kenny Constr. Co., 111 W. Washington St., Chicago, Ill. Low Bidder, $820,090, Auxiliary outlet sewer IC, CHICAGO, ILL. City, City Hall, Chicago 2, Ill. Bids May 31. CD 5/23.

LOW BIDDERS—BUILDINGS

Knoxiton Constr. Co., 106 N. Main St., Bellefontaine, O. Low Bidder, $947,000. general constr. addn. to Lima State HOSPITAL, LIMA, O. Ohio Welfare Dpt., State Office Bldg., S. Front St., Columbus, O. Bids May 25. CD 4/30.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Bd. Control**, M. L. Davis, service dir., City Hall, Akron, O. Own Forces. Approx. $1,000,000. repair 30 mi. streets using emulsified asph. mixture, asph. waring course, asphaltic binder, etc. AKRON, O. Robert E. Willems, city street supt. CD 12/10/43.

▲† **Allegheny Asphalt & Paving Co., Inc.**, 5 Ave. Extension, Pittsburgh, Pa. Contract Awarded. $1,500,000. lengthen southeast-northwest runway from 4,800 ft. to more than 7,500 ft., Youngstown Municipal Airport, YOUNGSTOWN, O. U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va.

▲ **Fitzsimmons & Connell Dredge & Dock**, 122 S. Michigan St., Chicago, Ill. Contract Awarded, Approx. $1,055,993, Lincoln Park exten. bulkheads, steel and rubble fill jetties, 2 piers Lake Shore Dr. from Foster to Ardmore Sts., CHICAGO, ILL. Chicago Park Dist., 425 E. 14 St., Chicago, Ill. CD 5/10, under LB.

▲ **LaCrosse Dredging Corp.**, 310 S. Michigan St., Chicago, Ill. Contract Awarded. $1,112,900. 248 ft. long, 40 ft. high, concrete gravity type storage dam, 2 crest drum gates, Flint River, FLINT, MICH. City, Albert C. Hull, dir. Pub. Purchases, Flint, Mich. Bids May 17. CD 5/1.

CONTRACTS—BUILDINGS

▲ **E. Elford & Son, Inc.**, 555 S. Front St., Columbus, O. Contract Awarded. Approx. $1,000,000. 3 story red brick LABORATORY, Tisdale Ave. with 115 unit laboratories and 2 bays for pilot plant operations, COLUMBUS, O. Battelle Institute, Clyde Williams, dir., 505 King Ave., Columbus, O. Dan. A. Carmichael, 5 E. Long St., Columbus, O., archt. CD 1/24.

▲ **The Austin Co.**, 510 N. Dearborn St., Chicago, 10, Ill. Contract Awarded. $5,000,000, steel, concrete, brick, 400,000 sq. ft. FACTORY, TERRE HAUTE, IND. Allis-Chalmers Mfg. Co., 13 and Hawthrone Sts., Terre Haute, Ind. Awarded May 28.

▲ **Crane Constr. Co.**, 505 N. Michigan St., Chicago 11, Ill. Contract Awarded. $2,777,500. 294 unit 19 story, bsmnt., APARTMENT, garage in rear at Michigan and Surf Sts., CHICAGO, ILL. Raymond Scher, 505 N. Michigan St., Chicago 11, Ill. Awarded May 25. Philip D. Maher, 157 E. Erie St., Chicago 11, Ill., archt.

▲ **J. W. Snyder Co.**, 307 N. Michigan St., Chicago 1, Ill. Contract Awarded. $2,000,000. Gertrude Dunn Hicks MEMORIAL addn. to Billings Hospital, CHICAGO, ILL. University of Chicago, 936 E. 58 Court, Chicago, Ill. Schmidt, Garden & Erikson, 104 S. Michigan St., Chicago 3, Ill., archts. Awarded May 10. CD 11/2/50.

▲ **Co-operative Home Builders, Inc.**, 228 N. LaSalle St., Chicago 1, Ill. Owner Builds. $1,500,000. 152 unit APARTMENTS, SKOKIE, ILL., Rosen & Horwitz, 53 W. Jackson St., Chicago 4, Ill., archts. Awarded May 28.

J. Emil Anderson Co., 1809 Balmoral St., Chicago 40, Ill. Contract Awarded. $600,000. 60,000 sq. ft. FACTORY and OFFICES, Cicero Ave., corner Jarvis St., SKOKIE, ILL. Janette Mfg. Co., 556 W. Monroe St., Chicago 7, Ill. Awarded May 28. Arthur M. Heda, c/o owner, archt. CD 3/30.

▲ **O. B. Hart Co.**, 12831 W. Chicago St., Detroit, Mich. Owner Builds. $2,500,000. 215 brick, frame HOUSES, Appleton and Schoolcraft Sts., DETROIT, MICH.

▲ **Gordon-Begin R. E. Brokerage**, 18450 James Couzens Detroit, Mich. Owner Builds. $1,500,000. 150 single HOMES, Moran east of Fort St., LINCOLN PARK, MICH.

Dickerson Constr. Co., 5786 Dickerson St., Detroit, Mich. Owner Builds. $850,000. 85 brick HOUSES, Utica Rd. and Gratiot St., ROSEVILLE, MICH.

▲ **S & S Building Co.**, 14900 Wyoming St., Detroit, Mich. Owner Builds. $3,150,000. 222 brick HOMES, Condon St. sect., ROYAL OAK, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

Tex., Fort Worth — REFINERY — Bids Asked — Premier Petroleum Co., Mt. Olivet Rd., addnl. refinery unit, $650,000. CD 5/3.

BIDS ASKED—BUILDINGS

Minn., Hibbing—POWER PLANT—B.A. 6/19—Village, Pub. Utilities Comn., E. A. Anderson, secy., furnish, erect 2 steam generating units in municipal power plant, $750,000. Plans deposit $35, Pfeifer & Shultz, 702 Wesley Temple Bldg., Minneapolis, engrs.

▲ **Minn., West St. Paul**—SCHOOL—B.A. 6/19—Bd. Educ., A. Johnson, clk., high school, remodel Junior High School. $1,000,000. Plans deposit $25. Voted $1,400,000 bonds Dec. 12, Thorshov & Cerny, 400 Metropolitan Life Bldg., Minneapolis, archts. CD 6/19/50.

▲† **Tex., Fort Worth** — WAREHOUSES — B.A. 6/22 — U. S. Eng., 1127 T & P Bldg., Fort Worth, No. 1 permanent type warehouse, $1,250,000; No. 2, masonry type warehouse, $1,500,000, both for QM Depot. CD 4/5, under LB.

▲ **Tex., Houston** — HOUSING — B.A. 6/23 — Housing Housing Auth., c/o San Felipe Courts, Houston, 348 low cost housing units. $4,000,000. Wyatt C. Hedrick, 5201 Fannin St., Houston, engr. and archt. CD 7/25/49.

▲ **Ark., Little Rock**—HOSPITAL—B.A. 6/24—University of Arkansas Medical School, Little Rock, 400-bed hospital, $6,000,000. Extended date. Erhart, Eichenbaum & Rauch, Hall Bldg., Little Rock, archts. CD 3/21.

▲† **N. M., Los Alamos**—LABORATORY—B.A. 6/25—U. S. Atomic Energy Comn., Los Alamos, laboratory maintenance shops, Inv. No. 291-051-129. $1,250,000-$1,500,000. Plans deposit $50. CD 5/11.

▲† **Tex., Port Neches**—PLANT—Bids Asked—U.S. Govt., c/o Rubber Reserve Bd., Port Arthur, c/o Port Neches Butane Products Co., lessee and operators, admnl. plant facilities for manufacture of butadiene, $4,000,000. CD 6/4.

▲ **Tex., Texas City** — REFINERY — Bids Asked — Pan-American Refining Co., Texas City, addnl., benzine and products refinery nit. $1,100,000. CD 5/17.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Bethlehem Steel Co.,** E. 3 St., Bethlehem, Pa., Low Bidder, **$1,694,563,** galvanized-steel single-circuit towers and appurtenances for Bismarck-Mobridge-Oahe 230 kv transmission lines, Garrison approach spans and ties to switchyards between Oahe and Sioux City, Spec. DS-3392, Missouri River Basin Proj., NORTH DAKOTA, SOUTH DAKOTA and IOWA. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids May 22. CD 4/26.

▲† **Campbell-Chaning-Lytle,** 2520 Leyden St., Denver, Colo. Low Bidder, **$1,159,666,** est. $1,125,329, 115 kv, 3 phase, 60 cycle single circuit, wood pole, H-frame type between Rapid City and Midland Spec. DC-3387, Missouri River Basin Proj., SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids May 17. CD 4/20.

▲† **Peter Kiewit Sons Co.,** Omaha National Bank Bldg., Omaha, Neb. Low Bidder. **$1,125,456.** Airmen's DORMITORIES at Offutt Air Force Base, Inv. 31 (SP), FORT CROOK, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 24. CD 5/9.

▲† **Del E. Webb Constr. Co.,** 302 S. 23 Ave., Phoenix, Ariz. Low Bidder. **$3,870,152,** 11 mess halls and admin. bldg., Inv. No. Eng 34-066-51-31, AMARILLO, TEX., U. S. Eng. Box 61, Tulsa 2, Okla., Bids May 28. CD 5/9.

▲† **J. A. Jones,** 354 Aero Dr., Shreveport, La., Low Bidder. **$1,975,000,** est. $1,250,000, five 1,000-man MESS HALLS, incl. systems of gas, water, sewers, roads, electric, Inv. No. Eng. 41-243-51-74; **$1,100,125,** est. $600,000, 2 academic bldgs.; **$6,824,875,** est. $2,000,000, 75 barracks, incl. systems of gas, water, sewers, roads, electric, drainage, LACKLAND AIR BASE, (Br. San Antonio), TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids May 29.

† **Lembke-Clough & King Constr.** P.O. Box 144, Albuquerque, N. M. Low Bidder, **$900,046,** est. $1,224,371, 7 two story approx. 5,600 sq. ft., masonry DORMITORIES, 750-man, 1,000 sq. ft., (1st floor); 3,400 sq. ft. (2nd floor) masonry MESS HALL, ALBUQUERQUE, N. M. U. S. Eng., P.O. Box 1538, Albuquerque, N. M. Bids May 23.

LOW BIDDERS—BUILDINGS

▲† **R. E. McKee,** P. O. Box 637, Los Alamos, N. M. Low Bidder. **$1,813,700,** est. $1,200,000-$1,600,000, ADMINISTRATION BLDG., SHOP, TWO GUARD STATIONS, site improvs., utilities, LOS ALAMOS, N. M. Atomic Energy Comn., Los Alamos, N. M. CD 5/23.

CONTRACTS—HEAVY CONSTRUCTION

▲† **Knutson Constr. Co.,** 2233 Commerce Bldg., Houston, Tex. Contract Awarded. **$1,387,000.** 80,000 sq. ft. masonry, steel, airport administration bldg., HOUSTON, TEX. City City Hall, 900 Brazos St., Houston, Tex. Bids May 23. CD 5/3, under LB.

▲† **J. A. Jones,** 354 Aero Dr., Shreveport, La., Contract Awarded, **$1,975,000,** five 1,000 men MESS HALLS, incl. systems of gas, water sewers, roads, electric, Inv. No. ENG 41-243-51-74, **$1,100,125,** 2 academic bldgs.; **$6,824,875,** 75 barracks, incl. systems of gas, water, sewers, roads, electric, drainage, Lackland Air FORCE BASE, (Br. San Antonio), TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Grand total $9,900,000. Bids May 29, awarded June 2. CD 6/6, under LB.

▲† **Hoops Constr. Co.,** Twin Falls, Idaho, Contract Awarded, **$953,432,** Schedule I, 24.5 mi. road along upper end of 34 mi. long, 3,500,000 acre ft. reservoir; **Miller & Strong,** Eugene, Ore., **$1,179,410,** Schedule II, 22.5 mi. road along downstream half of reservoir, Hungry Horse Dam, MONTANA. Bureau Reclamation, Hungry Horse Govt. Camp, Columbia Falls, Mont. CD 5/31, under LB.

† **Lembke-Clough & King Constr. Co.,** P. O. Box 144, Albuquerque, N. M. Contract Awarded. **$900,050,** est. $558,950, seven 2 story, 5,600 sq. ft., masonry dormitories, 1 masonry mess and administration bldg., ALBUQUERQUE, N. M. U. S. Eng., P. O. Box 1538, Albuquerque, N. M. Bids May 23, awarded May 28. CE 5/29, under LB.

CONTRACTS—BUILDINGS

▲ **Fruin-Colnon Contg. Co.,** 1706 Olive St., St. Louis 3, Mo. Contract Awarded. Approx. **$2,800,000.** Merchant Coke Plant addn., incl. installation 40 addnl. coke ovens, near confluence of Mississippi River with River des Peres, ST. LOUIS, MO. Great Lakes Carbon Corp., 526 E. Catalan St., St. Louis 11, Mo. Simon-Carves, Ltd., Stockport, England, engrs.

▲ **Scott Paper Co., Chester, Pa., and Houston Oil Co.** Petroleum Bldg., Houston, Tex. **$30,000,000** approx. complete. Owner Builds. paper MILL, EVADALE, TEX.

▲ **Crawford Constr. Co.,** 203 N. 16 St., McAllen, Tex. Contract Awarded, **$1,124,159.** 150 unit HOUSING Proj. Tex. 28-1, McALLEN, TEX., McAllen Housing Auth., McAllen, Tex. Bids May 10, awarded May 28. CD 5/15, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
June 27, California
STREETS AND ROADS
June 21, Washington **June 27, California**

▲† **Oregon**—B.A. 6/26—U. S. Eng., 628 Pittock Block, Portland, constr. Big Cliff gravity dam and powerhouse, complete Detroit Dam both North Santiam River. $50,000,000.

BIDS ASKED—BUILDINGS

▲ **Ariz., Phoenix**—DEPARTMENT STORE—B.A. About 6/21—Landrum-Mills Realty Co., Hotel Westward Hotel, Phoenix, Ariz., two level department store, and 400-car underground parking garage, **$3,000,000.** CD 10/13/50.

LOW BIDDERS—HEAVY CONSTRUCTION

▲† **Minnis & Shilling and United Concrete Pipe Corp.,** Baldwin Park, Calif., Low Bidder, **$1,425,013,** est. $1,160,044, earthwork, asph. membrane lining, pipe lines and structures for Area E-3, laterals and sub-laterals East Low Canal Laterals, Columbia Basin Proj., Spec. DC-3356, WASHINGTON Bureau Reclamation Dpt. Interior, Ephrata, Wash. Bids May 23.

▲† **Lease & Leighland,** 1501 N. 35 St., Seattle, 3, Wash. Low Bidder, **$3,837,756,** est. $4,344,268. 16 frame baracks bldg. and 2 mess-administration facilities bldg. at Larson Field, Inv. 51-7, MOSES LAKE, WASH. U. S. Eng. Bldg. 602 City-County Airport, Walla Walla, Wash. Bids 6/1. CD 5/15.

▲† **S. Birch & Sons Constr. Co. & McLaughlin, Inc.,** Ford Bldg., Great Falls, Mont., Low Bidder, **$2,051,324.** constr. airfield pavement Fairchild Air Force Base, SPOKANE, WASH. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids May 29. CD 5/15.

▲† **Peter Kiewit Sons Co.,** Longview, Wash. Low Bidder. **$3,724,713,** grading, paving, lighting 8,000 ft. runway, 200 ft. wide, Spec. 28405, WHIDBEY ISLAND, WASH. Pub. Wks. Officer, 13th Naval Dist., 1611 W. Wheeler St., Seattle, Wash. Bids 6/1.

▲ **Winston Bros. Co.,** 1530 California St., Monrovia, Calif., Low Bidder, **$2,439,710,** railroad underpass, 5 highway separation and 2.8 mi. grading, surf. Santa Ana Freeway between Broadway and Santa Ana and 1 St., Orange Co., CALIFORNIA State Div. Hys., 120 S. Spring St., Los Angeles, Calif. Bids June 1. CD 5/10.

▲† **Guy F. Atkinson Co.,** 10 W. Orange Ave., South San Francisco, Calif. Low Bidder **$1,463,721,** earthwork for powerhouse, warehouse, penstock, etc. for Folsom Power Plant, Folsom, CALIFORNIA. Bureau Reclamation, Old Post Office Bldg., Sacramento, Calif. Bids May 29. CD 5/2.

† **Guy F. Atkinson Co.,** 22233 S. Santa Fe Ave., Los Angeles, Calif. Low Bidder, **$971,400,** breakwater and landing pier, Spec. 30139, San Nicholas Island, POINT MUGU, Calif. U. S. Naval Air Missile Test Center, Point Mugu, Calif. Bids May 29. CD 5/18.

▲ **Clinton Constr. Co. of California,** 923 Folsom St., San Francisco, Calif. Low Bidder, **$6,777,000.** passenger terminal at San Francisco Airport. Airport Contr. 130, SAN FRANCISCO, CALIF. City and San Francisco Co., City Hall, San Francisco, Calif. Bids May 29. CD 5/7.

LOW BIDDERS—BUILDINGS

▲† **Tolboe & Harlin Constr. Co.,** Dooly Bldg., Salt Lake City, Utah. Low Bidder, **$852,131.** construct in Area "D" DECONTAMINATION bldg., FIELD OPERATIONS bldg., MEDICAL TEST LABORATORY; MUNITIONS STORAGE bldg.; EXPLOSIVE IGLOOS, MUNITIONS COLD STORAGE bldg., PLANT GROWNG bldg., WAREHOUSE, EXPOSURE bldg. and CHEMICAL LABORATORY; **$477,684** in Area "C" MUNITIONS ASSEMBLY bldg., SURVEILLANCE bldg., OFFICE and CHANGE HOUSE, WAREHOUSE, PAINT and REPAIR SHOP, COAL TRANSFER and HOIST STATION, DEFUZING STATION and OPEN TRANSFER STATION, at Dugway Proving Ground, TOOELE, UTAH. U. S. Eng., 74 New Montgomery St., San Francisco, Calif. Bids May 29. CD 4/16.

▲† **Sound Constr. & Eng. Co.,** 1300 Aloha St., Seattle, Wash. Low Bidder. **$3,744,213,** RADIOCHEMISTRY BLDG. at Hanford Works, RICHLAND, WASH. General Electric Co., Richland, prime contractor to Atomic Energy Comn., Richland, Wash. Bids May 29. CD 5/14.

▲ **M. H. Golden Constr. Co.,** 3485 Noll St., San Diego, Calif. Low Bidder. **$1,468,950,** 2 and 3 story, reln.-con. ADMINISTRATION bldg., SAN DIEGO, CALIF. San Diego Unified School Dist., 825 Union St., San Diego, Calif. Bids May 29. CD 5/4.

CONTRACTS—HEAVY CONSTRUCTION

▲ **Basich Bros. Constr. Co. & N. L. Basich,** 1148 N. San Gabriel Blvd., Garvey, Calif. Contract Awarded, **$1,049,143,** plant mix surf. etc., 3.9 mi. 1.2 mi. east of Whitewater, Riverside Co., CALIFORNIA State Div. Hys., 120 S. Spring St., Los Angeles, Calif. Bids May 3, awarded June 1. CD 5/10, under LB.

▲ **Griffith Co.,** 1060 S. Broadway, Los Angeles, Calif. Contract Awarded, **$1,429,146,** grading, structures 2.5 mi. on Los Angeles Freeway between Route 60 and 22 in Long Beach, Los Angeles Co., CALIFORNIA. State Div. Hys., 120 S. Spring St., Los Angeles, Calif. Bids Apr. 26, awarded June 1. CD 5/2, under LB.

▲ **Winston Bros., Co.,** 1532 S. California Ave., Monrovia, Calif. Contract Awarded, **$1,634,442,** 5 bridges, etc. on Hollywood Freeway, Los Angeles between Cahuenga Blvd. and Gower St., Los Angeles Co., CALIFORNIA. State Div. Hys., 120 S. Spring St., Los Angeles, Calif. Bids May 10, awarded June 1. CD 5/17, under LB.

▲† **Erbentraut & Summers,** 696 Pennsylvania Ave., San Francisco, Calif. Contract Awarded, **$1,019,897,** Alt. **$1,048,122,** operations and utilities bldg. at AAG radio receiving station, Spec. 1525, MIDDLETOWN, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Blanchard, Maher & Paulus, 369 Pine St., San Francisco, Calif., archts. Awarded June 1. CD 11/17/50.

CONTRACTS—BUILDINGS

▲ **Wayne Guthrie Constr. Co.,** N2918 Nevada St. Spokane, Wash. Contract Awarded. **$2,100,000** construct, manage and finance 220 additional rental HOUSING UNITS at Fairchild Air Force Base, SPOKANE, WASH. U. S. Air Force, Pentagon Bldg., Wash., D. C.

▲ **Williams & Burrows, Inc., and Carl N. Swenson,** 10 California Dr., Burlingame, Calif. Contract Awarded, **$3,447,000** general contract***Luppen & Hawley, Inc.,** 3126 "J" St., Sacramento, Calif., **$899,585,** mechanical combination, for HEADQUARTERS bldg. for Dpt. Motor Vehicles, SACRAMENTO, CALIF. State Div. Architecture P. Wks. Bldg. Sacramento, Calif. Bids May 15, awarded June 1. CD 5/23, under LB.

ALASKA

BIDS ASKED—BUILDINGS

▲† **Alaska, Fort Richardson** — LAUNDRY AND DRY CLEANING PLANT—B.A. 6/28—U. S. Eng., New Washington Hotel, Seattle 1, Wash., laundry and dry cleaning plant, Inv. No. S95-507-51-107. $2,000,000. Plans deposit $50. CD 3/14.

LOW BIDDERS—BUILDINGS

† **J. B. Warrach Co.,** Securities Bldg., Seattle 1, Wash. Low Bidder. **$815,000.** 115x290 ft. steel frame general REPAIR SHOP, ANCHORAGE, ALASKA. The Alaska Railroad, Dpt. Interior, Anchorage, Alaska. Bids May 22. CD 5/22, under LB.

CONTRACTS—HEAVY CONSTRUCTION

† **Munter Constr. Co.,** Vance Bldg., Seattle 1, Wash., Contract Awarded, **$697,256,** est. $773,162, construct "Loop Revision" sect. of Alaska R.R. between Mile Posts 47.5 and 50.8 on Seward sub-division, ALASKA. The Alaska Railroad, Dpt. Interior, Anchorage, Alaska. Bids Apr. 30. CD 5/7, under LB.

CONTRACTS—BUILDINGS

▲† **Patti-MacDonald Constr. Co.,** 1340 Admiral St., Kansas City, Mo. Contract Awarded, **$2,709,400,** est. $3,018,888, twenty-three 8-family QUARTERS, Inv. No. S95-507-51-89, FORT RICHARDSON, ALASKA. U.S. Eng., New Washington Hotel, Seattle 1, Wash. Bids Apr. 17. CD 4/23, under LB.

U. S. POSSESSIONS

CONTRACTS—BUILDINGS

▲† **Brown-Pacific-Maxon Constr. Co.,** Ferry Bldg., San Francisco, Calif. Contract Awarded, **$18,000,000,** 4 story, 350-bed HOSPITAL, flanked by pair of 2 story ward-wings and dependents' wing, incl. personnel quarters, power plant, fire station, garage, storehouse, 4 family quarters units for key personnel, GUAM. Yards & Docks Annex, Navy Dpt., Arlington, Va.

CANADA

BIDS ASKED—BUILDINGS

▲ **Alta., Edmonton**—TELEPHONE BLDG.—B.A. 7/14—Alberta Government Telephones, CPR Bldg., telephone bldg. $1,250,000. Extended date. Rule, Wynn & Rule, 11424 Jasper Ave., archts. CD 5/23.

CONTRACTS—BUILDINGS

▲† **W. C. Wells Constr. Co.,** Saskatoon, Sask. Contract Awarded, **$1,770,050.** BUILDING at Wainwright Army Camp, WAINWRIGHT, ALTA. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids May 23, awarded May 31. CD 5/4.

▲ **Hill-Francis-Clark Ltd.,** Whitewood Ave., New Liskeard, Ont. Contract Awarded. Est. **$1,000,000,** diesel engine locomotive REPAIR SHOP, NORTH BAY, ONT. Ontario Northland Transportation Comn., 93 Regina St., North Bay, Ont. Bids May 10, awarded May 28. CD 4/13.

(Proposal Advertisements see pp. 93 to 97)

OFFICIAL PROPOSALS

Bids: June 21, 1951

Heating Plant Equipment

HOUSING AUTHORITY OF BALTIMORE CITY

The Housing Authority of Baltimore City will receive sealed bids for new heating plant equipment in the existing Heating Plant Building at Cherry Hill Homes, Baltimore, Maryland including the replacement of existing boilers with new boilers and accessories, and the extension of high pressure heating service line, (designated as Part B of Housing Project MD 2-12), until 3:30 P.M., (Eastern Daylight Saving Time), on the 21st day of June, 1951, at 709 East Eager Street, Baltimore 2, Maryland, at which time and place all bids will be publicly opened and read aloud.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Housing Authority of Baltimore City at 709 East Eager Street, Baltimore 2, Maryland, and at the office of Tyler, Ketcham and Myers, Architects, 512 Park Avenue, Baltimore 1, Maryland, and at the office of Egli and Gompf, Inc., Mechanical Engineers, 1019 N. Calvert Street, Baltimore 2, Maryland, and at the office of the Building Congress and Exchange of Baltimore at 2301 North Charles Street, Baltimore 18, Maryland.

Contractors may obtain copies of the documents by depositing $50.00 with the Housing Authority of Baltimore City for each set of documents so obtained. Such deposit will be refunded to each Contractor who returns the plans, specifications and other documents in good condition within 10 days after bid opening. The deposit must be in the form of a check, made payable to the Housing Authority of Baltimore City. Cash is not acceptable.

A Cashiers' check or bank draft, payable to the Housing Authority of Baltimore City, negotiable U. S. Government bonds, or a bid bond binding the bidder and acceptable sureties to the Housing Authority of Baltimore City in an amount equal to five percent (5%) of the bid shall be submitted with each bid.

The successful bidder will be required to furnish and pay for satisfactory performance, payment, and highways bonds.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Specifications must be paid on this project.

The Housing Authority of Baltimore City reserves the right to reject any or all bids or to waive any informalities in the bidding.

No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of bids without the consent of the Housing Authority of Baltimore City.

HOUSING AUTHORITY OF BALTIMORE CITY

Oliver C. Winston, Executive Director

Bids: June 21, 1951

Airport

SECTION A—INVITATION FOR BIDS
(CONSTRUCTION CONTRACT)
SHREVEPORT
CADDO PARISH
LOUISIANA

SEALED BIDS, subject to the conditions contained herein, will be received until 10:00 A.M. o'clock, central standard time, Thursday, June 21, 1951, at the Council Chamber, City Hall, Shreveport, Louisiana, and then publicly opened and read aloud for furnishing all labor and materials and performing all work for additional construction for the Greater Shreveport Municipal Airport, Federal Aid Project No. 9-16-019-107, consisting, principally, of the following: Airport lighting system including elevated marker lights for runways and taxiways; concrete apron, taxiway, entrance drive and automobile parking areas; all weather access and service roads; clearing and grubbing; a water supply and fire protection system and a sewage disposal system.

The approximate quantities involved in the proposed work are:

Category No. 1:
- 40—Acres of Clearing and Grubbing
- 310—Acres of Grubbing
- 532—Lin. Ft. of 15" Pipe Culvert
- 810—Lin. Ft. of 18" Pipe Culvert
- 894—Lin. Feet of 24" Pipe Culvert
- 125—Lin. Ft. of 30" Pipe Culvert
- 942—Lin. Ft. of 36" Pipe Culvert
- 912—Lin. Ft. of 48" Pipe Culvert
- 814—Lin. Ft. of 54" Pipe Culvert
- 114—Cubic Yards of Concrete for Inlets, Headwalls and Manholes
- 3,300—Lbs. of Steel Gratings and Frames for Inlets
- 5,740—Lbs. of Cast Iron Gratings and Frames for Inlets and Manholes
- 185,000 Cubic Yards of Unclassified Excavation
- 0—Cubic Yards of Stock Pile Material
- 28—Lin. Ft. of 8-way Underground Electrical Conduit (Concrete Encased)
- 168—Lin. Ft. of 2-way Underground Electrical Conduit (Concrete Encased)
- 392—Lin. Ft. of 1-way Underground Electrical Conduit (Concrete Encased)
- 4,800—Cubic Yards of Compacted Sand Clay Gravel Surface and/or Base Course
- 6,320—Square Yards of Inverted Penetration Surface Treatment
- 1,380—Square Feet of 4" Plain Concrete Slab for segmented Circle Marker
- 350—Acres of Smooth Grading

Category No. 2:
- 11,700—Lin. Ft. of Fences, Class "E" (Chain Link)
- 5—Driveway Gates (Pair)

Category No. 3:
- 203—Acres of Seeding with Bermuda Seed (Including Tilling and Fertilizing)

Category No. 4:
- 26,000—Square Yards of 10" Concrete Slab Pavement
- 10,550—Square Yards of 8" Concrete Slab Pavement
- 19,320—Square Yards of 6" Concrete Slab Pavement
- 4,070—Lin. Ft. of Curb and Gutter
- 7,770—Square Feet of 4" Concrete Walks

Category No. 5:
- 1—Sewage Disposal System
- 1—Water Supply and Fire Protection System

Category No. 6:
- 1—Rotating Beacon
- 2—12-Foot Wind Cones
- 1—Control Panel, ANC Type II
- 1—Control Panel for Taxiway Lights
- 23,850—Lin. Ft. Cable Trench (for One Cable)
- 21,420—Lin. Ft. Cable Trench (for Two Cables)
- 0—Lin. Ft. Cable Trench (for Three Cables)
- 13,220—Lin. Ft. Cable Trench (for Four Cables)
- 57,360—Lin. Ft. No. 8, 5000 Volt, 1 Conductor Cable Installed in Trench
- 4,360—Lin. Ft. No. 8, 5000 Volt, 1 Conductor Cable Installed in Duct
- 17,000 Lin. Ft. No. 8, 5000 Volt, 1 Conductor Cable Installed in Duct
- 1,065—Lin. Ft. No. 8, 5000 Volt, 1 Conductor Cable Installed in Duct
- 32,950—Lin. Ft. No. 8, Bare MHD Copper Wire Installed in Trench
- 2,630—Lin. Ft. No. 8, Bare MHD Copper Wire Installed in Duct
- 1—High Intensity Transformer Vault Installation
- 1—Medium Intensity Transformer Vault Installation
- 54—Elevated Runway Marker Lights for 600 Volt Series Circuit
- 226—Elevated Taxiway Marker Lights for 600 Volt Multiple Circuits
- 16—High Intensity Runway Marker Lights; Green
- 28—High Intensity Runway Marker Lights; Clear
- 16—High Intensity Runway Marker Lights; Amber/-Clear, right hand
- 16—High Intensity Runway Market Lights; Amber/-Clear, left hand

Bidders may have the option of submitting proposals on any desired combination of the categories of work as outlined above. Bidders shall bid on all the individual items contained in any and all categories selected for bidding.

Minimum labor rates for the construction of the proposed work have been established by the Secretary of Labor, and a Schedule of labor classifications and wage rates to be paid are included in the proposal, and will be made a part of the contract. The bid shall contain a statement that the prices quoted are based on such wage rates.

Plans, specifications and contract documents may be examined, without charge, in the office of the Commissioner, Department of Public Works, City Hall, Shreveport, Louisiana, or the firm of Samuel G. Wiener, E. M. Freeman and Associates, Architects-Engineers, Continental American Bank Building, Shreveport, Louisiana, or, will be forwarded to prospective contractors upon deposit, with the Architects-Engineers, of $30.00 for one set as a guarantee of the safe return of the plans, specifications and contract documents. The full amount of this deposit will be returned to each actual bidder submitting a bona fide bid immediately upon return of the plans, specifications, and contract documents, all in sound and unmutilated condition. No refund will be made upon plans and specifications which are not returned within ten days after reception of bids.

Additional sets of plans, specifications and contract documents may be obtained by prospective contractors upon making a deposit of $30.00 for each additional set issued, and paying the cost of reproduction of the plans, specifications and contract documents for the additional sets. The deposit will be returned to the contractor immediately upon the return of the documents, unmutilated, provided the documents are returned within ten days after bids are received. Refund of payment for reproduction costs of extra sets of documents will not be made.

Each bid must be accompanied by bid security, which may be a bid bond, a check payable to the City of Shreveport, drawn on and certified by a National Bank or Cashier's check for an amount equal to 5% of the largest possible aggregate total of the prospective bidder's proposal.

Performance Bond will be required of the successful bidder for an amount of not less than 100% of the contract price.

Time limit for the construction of the proposed work, for any combination of categories, exclusive of turfing, shall be 150 working days.

Liquidated damages for delay will be invoked.

Seasonal operations for turfing are required.

Time limit for the turfing work is approximately 200 working days between March 15 and October 1.

Liquidated damages for delay for turfing section of the work will be required.

Bidders shall examine the plans, specifications and all related documents, and will be held to have examined the site of the work, and to have familiarized themselves with all of the circumstances and conditions affecting the costs and nature of the work.

Bids must be submitted on the form of bid furnished for the purpose by the Architects-Engineers, and the successful bidder will be required to execute the standard form of contract for construction within ten days after formal award of contract.

Right is reserved, as the interests of the City may indicate, to reject any and all bids, to waive informality in bids received, and to accept or reject any items and any category of any bid unless subject bid is qualified by specific limitation.

Envelopes containing bids must be sealed and addressed to Secretary-Treasurer of City of Shreveport, Louisiana, City Hall, Shreveport, Louisiana, and marked "Bid for Greater Shreveport Municipal Airport, Shreveport, Louisiana.

To be opened 10:00 A.M., central standard time, Thursday, June 21, 1951."

/s/ J. T. Tanner
Secretary-Treasurer

(Continued on page 94)

DRILLING CONTRACTORS

DIAMOND AND SHOT CORE BORINGS—DRY SAMPLE BORINGS

Foundation Testing for Bridges, Dams and All Heavy Structures

Also

Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment

SPRAGUE & HENWOOD, Inc.

Scranton, Pa. Dept. E, U. S. A.

CONTRACTORS' FIELD OFFICE TRAILER

Designed by Road Contractor

28' Aluminum Body—8' Wide
2 Rooms—2 Built-in Desks
1 Drafting Table—Built-in
Letter Files—Cabinets—Closets—Drawers—etc.

Price $2995.00 f.o.b. Baltimore

TRAILER VILLAGE, INC.

8645 Pulaski Highway, Baltimore 21, Md.

Phone: Essex 2223

OFFICIAL PROPOSALS

(Continued from page 93)

Bids: June 20, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on June 20, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 2				
		L. KETCHUM, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.				
Hamilton	FASS 51-15	Sabattis-Little Tupper Lake, Pt. 2 & 3 Proj. No. S62(4)	1 31	Bit. Macadam, Opt.	$4,500 Plans $10	$76,000
Oneida	FAC 51-2	Rome-West Artery (W. Whitesboro Street-Black River Blvd.) FAC 50-9 Proj. U635(3) Cont. 2	0 72	Traffic Control System	$2,000 Plans $10	$36,000
		DISTRICT No. 3				
		WM ROBINSON, Dist. Engr., Weigh Lock Building, Syracuse 1, N. Y.				
Wayne	FARC 51-27	Lyons Village: Geneva & Montezuma Sts. S. H. 5653 Lyons Village: Geneva St., S. H. 1701 Lyons-Clyde, S. H. 8027 Clyde Village: Genesee St., S. H. 5676 Proj. F18(3)	0 78	Asph. Conc. Type 1A, Opt.	$15,000 Plans $15	$275,000
		DISTRICT No. 4				
		A. R. MULLIGAN, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee	FARC 51-28	Alden-Darien Center, S. H. 1054 Darien Center-Alexander, Pts. 1 & 2, S. H. 1557-1661 Alexander-Canawaugus, Pts. 1, 2, 3 & 3A, S. H. 8447-8431-8450-9208 Proj. F652(5) & F611(13)	19 96	Asph. Conc. Type 1A, Opt.	$45,000 Plans $10	$842,000
		DISTRICT No. 5				
		C. R. WATERS, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	GISP 51-2P	Grand Island State Parkway	3 20 (Serv. Rd.) 4 13 (Pkwy.)	8" Two Cse. Cem. Conc. Pavt. 24' Wide = 3.88 Mi. Misc. Work = 0.25 Mi. (Service Rds. Bit. Mac. Pen. Method, Ty. 1 = 3.20 Mi.) 3 Sp. R. C. Slab = 102, 5' Tot.	$65,000 Plans $25	$1,185,000
	GISP 51-3	(West River Parkway) GISP49-1) Grand Island State Parkway (West River Parkway, Pt. 2)				
		DISTRICT No. 6				
		H. F. BRUMM, Dist. Engr., 30 West Main St., Hornell, N. Y.				
Chemung	FARC 51-29	Lowman-Waverly, Pts. 1 & 2, S. H. 5048-5218 Proj. F339(5)	4 66	Asph. Conc. Type 1A, Opt.	$14,000 Plans $15	$257,000
		DISTRICT No. 8				
		J. S. BIXBY, Dist. Engr., Pleasant Valley Rd., Poughkeepsie, N. Y.				
Columbia	FARC 51-30	Hudson-Brick Tavern-Ghent, S. H. 9087 Proj. S370(1)	1 79	Asph. Conc. Type 1A, Opt.	$2,500 Plans $10	$51,000
Orange	FARC 51-31	Scotts Corners-Burtside, S. H. 414 Proj. S371(1)	1 40	Asph. Conc. Type 1A, Opt.	$4,000 Plans $10	$70,000
Ulster & Greene	CT 51-1	Catskill Thruway, C. T. 46-1, 2 & 3, C. T. 43-1 (Including Access Drives and Service Roads)	7 64	Roadside Improvement	$1,500 Plans $10	$27,000
Ulster	FARC 51-32	Saugerties-Woodstock, Pt. 1, S. H. 37 Proj. F659(5)	1 34	Asph. Conc. Type 1A, Opt.	$3,500 Plans $10	$60,000
Westchester	FARC 51-33	Mamaroneck Village, S. H. 5376-5726 Proj. F932(4)	2 01	Asph. Conc. Type 1A, Opt.	$7,000 Plans $10	$122,000
Westchester	SMRP 51-1	Saw Mill River Parkway (Mt. Kisco-Katonah, Pt. 1)	(Access) 1.23 (Pkwy.) 3.04 (Access)	Rds. Grading = 0.98 Mi. Rds. Asph. Conc. Ty. 1A, Opt. = 0.25 Mi. Grading & Structures = 3.04 Mi. Hy. Sep. 60'—84' Rig. Fr. Hy. Sep. 70' Rig. Fr. Hy. Sep. 3 Sp. Alpha Beam and Pl. Girder 200'-6" Tot. Alpha Royalty = $329.40	$85,000 Plans $50	$1,473,000
Westchester	RC 51-34	Forty-eight Various Highways in South Westchester County	....	Three Removal & Pruning	$500 Proposal $5	$10,000
		DISTRICT No. 10				
		J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Suffolk	N. Sag. S. P. 51-3P	Northern-Sagtikos State Parkway Extension, Cont. 3	1.40 (Access) 3.95 (Pkwy.)	9" Unreinf. Cem. Conc. Pavement 2 at 25'	$88,000 Plans $50	$1,595,000

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3430) will be received by Bureau of Reclamation, Thermopolis, Wyoming, until July 3, 1951, and then publicly opened for furnishing labor and materials and performing all work for the completion of Boysen Dam, Power Plant, and Switchyard, Big Horn District, Boysen Division, Boysen Unit, Wyoming, Missouri River Basin Project. The work is situated approximately 18 miles south of Thermopolis, Wyoming. Principal items are approximately: 300,000 lbs., metalwork; 110,000 lin. ft., electrical conduit and conductors; 380,000 lbs., electrical equipment; furnishing and installing heating and ventilating system in power plant; installing two 10,500 hp. hydraulic turbines and two 80,000 ft.-lb. governors; erecting 2 generators; and other work. Time allowed for completion will be 365 days. For particulars, address Bureau of Reclamation, Thermopolis, Wyoming; or Building 1-A, Denver Federal Center, Denver, Colorado.

U. S. Government

Bids: July 27, 1951:

NOTICE TO CONTRACTORS
UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF TERRITORIES
WASHINGTON, D. C.

Sealed proposals will be received by the District Engineer for the Virgin Islands, Department of the Interior, Post Office Box No. 479, St. Thomas, Virgin Islands, until 2:00 P.M. Atlantic Standard Time on July 27, 1951, for the construction of the following work at St. John, Virgin Islands, comprising approximately the following quantities in the major items:

PROJECT NO. 53-104—POTABLE WATER FACILITIES, ST. JOHN, Virgin Islands

2,700 Sq. Yds.—3" Concrete Catchment Pavement
850 Lin. Ft.—Masonry Catchment Wall and Fence
1 Ea.—100,000 Gallon Concrete Reservoir
1 Ea.—25,000 Gallon Masonry Reservoir
900 Lin. Ft.—C. I. Pipe (2" to 8")

At above time and place the proposals will be publicly opened and read aloud. Bids received after closing time of bid opening will be returned unopened.

The right is reserved, as the interest of the Government may require, to reject any and all bids; to waive any informality in bids received; and to accept or reject any or all items of any bid, unless the bidder qualifies such bid by specific limitation. In the event all bids are rejected, the Government may therefore adopt any of the authorized procedures such as readvertisement, negotiation with rejected bidders and others, or postponement of the project. The Government also reserves the right to award contracts for the Cruz Bay water facility or the Bordeaux water facility or for both water facilities whichever is in the best interests of the United States.

Plans and specifications and other proposed contract documents are open for public inspection at the Office of the District Engineer for the Virgin Islands, Thomas G. Mooney, Charlotte Amalie, St. Thomas, Virgin Islands; R. L. Kenan and Associates, Consulting Engineers, Bell Building, Montgomery, Alabama; U. S. Department of Commerce No. 2, Puerto Rican Reconstruction Administration Ground, Building N, San Juan, Puerto Rico; Lester M. Marx, Special Assistant to the Director, Room 2713, Interior Building, Washington 25, D. C.; AGC Office, 1113 Congress Building, Miami 32, Florida; Builders' Exchange, 46 Northeast 6th Street, Miami, Florida; and F. W. Dodge Corporation, 119 W. 40th Street, New York City, N. Y.

A set of such documents may be procured from the first two of the above-listed offices upon deposit of $20.00 by certified check payable to the United States of America, all of which will be refunded to bonafide bidders upon the return of plans and specifications in good condition, within seven days from date of bid opening.

To parties who procure plans and specifications upon payment of $20.00 and who do not submit a bid, $15.00 will be refunded provided same are returned within seven days from date of bid opening. No refund will be made for return after this time.

Each proposal must be accompanied by a bid security in an amount of not less than 5 percent of the total bid.

The successful bidder will be required to furnish a performance bond in an amount equal to 100 percent of the contract price, and a payment bond in an amount equal to 100 percent of the contract price, such bonds to cover full performance of the contract and payment for labor and materials.

No proposal may be withdrawn after the scheduled closing time for receipt of bids for at least 30 days.

LESTER M. MARX
Contracting Officer
Office of Territories

(Continued on page 95)

CONTRACTORS WATCH THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS
(Continued from page 94)

Bids: June 22, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Friday, June 22, 1951, by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Deposit	Estimated Cost of Work
		DISTRICT No. 1		
		George L. Nickerson, Dist. Engr., 333 Broadway, Albany 1, N. Y.		
6 Counties and 3 Cities in Dist. No. 1	FARC 51-17	Installation of 11 Automatic Recording Traffic Counters District No. 1 Proj. SWHP 1-(8)	$750 Plans $10	$13,519
		DISTRICT No. 2		
		L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y.		
5 Counties and 2 Cities in Dist. No. 2	FARC 51-18	Installation of 11 Automatic Recording Traffic Counters District No. 2 Proj. SWHP 1-(8)	$670 Plans $10	$12,133
		DISTRICT No. 3		
		Wm. Robinson, Dist. Engr., Weigh Lock Building, Syracuse, N. Y.		
4 Counties and 2 Cities in Dist. No. 3	FARC 51-19	Installation of 9 Automatic Recording Traffic Counters District No. 3 Proj. SWHP 1-(8)	$570 Plans $10	$10,350
		DISTRICT No. 4		
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.		
5 Counties and 2 Cities in Dist. No. 4	FARC 51-20	Installation of 10 Automatic Recording Traffic Counters District No. 4 Proj. SWHP 1-(8)	$625 Plans $10	$11,320
		DISTRICT No. 5		
		C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.		
4 Counties and 2 Cities in Dist. No. 5	FARC 51-21	Installation of 10 Automatic Recording Traffic Counters District No. 5 Proj. SWHP 1-(8)	$610 Plans $10	$11,040
		DISTRICT No. 6		
		H. F. Brumm, Dist. Engr., 30 West Main Street, Hornell, N. Y.		
5 Counties and 2 Cities in Dist. No. 6	FARC 51-22	Installation of 10 Automatic Recording Traffic Counters District No. 6 Proj. SWHP 1-(8)	$520 Plans $10	$9,410
		DISTRICT No. 7		
		R. F. Hall, Dist. Engr., 444 VanDuzee St., Watertown, N. Y.		
4 Counties and 1 City in Dist. No. 7	FARC 51-23	Installation of 8 Automatic Recording Traffic Counters District No. 7 Proj. SWHP 1-(8)	$455 Plans $10	$8,240
		DISTRICT No. 8		
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.		
6 Counties and 2 Cities in Dist. No. 8	FARC 51-24	Installation of 14 Automatic Recording Traffic Counters District No. 8 Proj. SWHP 1-(8)	$820 Plans $10	$14,868
		DISTRICT No. 9		
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.		
5 Counties and 2 Cities in Dist. No. 9	FARC 51-25	Installation of 10 Automatic Recording Traffic Counters District No. 9 Proj. SWHP 1-(8)	$570 Plans $10	$10,360
		DISTRICT No. 10		
		J. J. Darcy, Dist. Engr., Montauk Highway at Little E. Neck Road, Babylon, L. I., N. Y.		
2 Counties in Dist. No. 10	FARC 51-26	Installation of 6 Automatic Recording Traffic Counters District No. 10 Proj. SWHP 1-(8)	$415 Plans $10	$7,494

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: June 25, 1951:

Wooden Fence at East End of Runway 10-28

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-140.002

Sealed proposals for the construction of a wooden fence at the east end of Runway 10-28 at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M., Monday, June 25, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 14, 1951.

OFFICIAL PROPOSALS

Bids: June 19, 1951

Intercepting Storm Sewer

Sealed bids will be received by the Mayor and Council of the Borough of Butler, Morris County, New Jersey, in the Borough Hall, Butler, New Jersey, until eight o'clock P.M., Daylight Saving Time, on June 19, 1951 to furnish all machinery, labor and materials for the construction of an intercepting storm sewer on Roosevelt Avenue and Northwestern Avenue and over a private right-of-way to the Pequannock River, of approximately 1750 linear feet of reinforced concrete pipe, including 1370 feet of 42 inch reinforced concrete pipe, 380 linear feet of 30 inch reinforced concrete pipe, catch basins at intake chamber, inlets, manholes, concrete headwalls, rip-rapping, etc., in accordance with plans and specifications prepared by Newell C. Harrison, Borough Engineer, on file in the office of the Borough Clerk or the office of the Engineer, 98 High Street, Butler, N. J.

Instructions to bidders, specifications, proposal blanks and plans and profiles may be secured from John F. Bormuth, Borough Clerk, or at the office of the Engineer, upon payment of Five ($5.00) Dollars, which will not be refunded.

A certified check for ten per cent (10%) of the total cost of the work, payable to the Collector of the Borough of Butler, must accompany each bid as a guaranty of good faith on the part of the bidder to insure proper execution of the contract and bond.

Should the bidder to whom the contract is awarded by the Borough Council, fail, upon proper notice being given him, to execute said contract and furnish the required bond as stated in the specifications, then the amount of the certified check will be forfeited to the Borough of Butler.

All bids should be submitted in a sealed envelope and marked "Bids for Intercepting Storm Sewer" and presented to John F. Bormuth, Borough Clerk, Butler, New Jersey, not later than the time specified.

The Borough Council reserves the right to reject any or all bids.

John F. Bormuth,
Borough Clerk, Butler, N. J.

Bids: June 27, 1951:

Fence Along Northern Boundary

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-140.010

Sealed proposals for the furnishing and installation of chain link fence and relocation of existing chain link fence along the northern boundary of New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Wednesday, June 27, 1951, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 14, 1951.

U. S. Government

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

NOTICE IS HEREBY GIVEN that sealed bids on Invitation No. 703S-187 will be received at P. O. Box 280, Reclamation Center, Casper, Wyoming, until 10 a.m., Mountain Standard Time, June 19, 1951, and then publicly opened, for furnishing switching equipment for Laramie substation additions, Kendrick Project, Wyoming.

Copies of the standard forms and of the invitation may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, 318 New Customhouse, Denver 2, Colorado; I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations furnished for bidding purposes; for all others $0.25 per copy, not returnable.

(Continued on page 96)

OFFICIAL PROPOSALS

(Continued from page 95)

Bids: June 20, 1951

State Road Work

Sealed proposals will be received by the State Highway Department, at its offices in Dover, Delaware, until 2:00 P.M., E.D.S.T., (1:00 P.M., E.S.T.), June 20, 1951 and at that time and place publicly opened for contracts involving the following approximate quantities:

Contract 1124
Gasoline Requirements
New Castle County
Fiscal Year 1951-52
173,000 Gallons Regular Grade Gasoline

Contract 1125
Gasoline Requirements
Kent County
Fiscal Year 1951-52
230,000 Gallons Regular Grade Gasoline

Contract 1126
Gasoline Requirements
Sussex County
Fiscal Year 1951-52
220,000 Gallons Regular Grade Gasoline

Contract 1127
Diesel Fuel Requirements
New Castle County
Fiscal Year 1951-52
12,500 Gallons Diesel Fuel Oil

Contract 1128
Diesel Fuel Requirements
Kent County
Fiscal Year 1951-52
35,000 Gallons Diesel Fuel Oil

Contract 1129
Diesel Fuel Requirements
Sussex County
Fiscal Year 1951-52
25,000 Gallons Diesel Fuel Oil

Contract 1130
Bituminous Surface Treatment
1951-52
New Castle County
10,000 Gal. R. C. 1 Asphalt, furnished and applied
360,000 Gal. R. C. 3 Asphalt furnished and applied
50,000 Gal CE 3 Emulsified Asphalt, furnished and applied
21,000 Tons Crushed Chips
400 Tons ¾" Stone

Contract 1131
Bituminous Surface Treatment
1951-52
Kent County
61,000 Gal. R. C. 1 Asphalt, furnished and applied
98,000 Gal. R. C. 3 Asphalt, furnished and applied
75,000 Gal. CE 3 Emulsified Asphalt, furnished and applied
6,600 Tons Stone Chips
1,600 Tons ¾" Slag

Contract 1132
Bituminous Surface Treatment
1951-52
Sussex County
47,500 Gal. R. C. 1 Asphalt, furnished and applied
464,000 Gal. R. C. 3 Asphalt, furnished and applied
9,700 Tons ¾" Stone
3,200 Tons ¾" Slag
5,200 Tons S. P. 57 Slag

Contract 1133
Concrete Pipe Requirements 1951-52
Statewide

	New Castle County f. o. b. Highway Yard	Kent County f. o. b. Highway Yard	Sussex County f. o. b. Highway Yard
Reinforced Concrete Pipe			
12"	2500	2000	3300
15"	260	850	1100
18"	150	250	200
24"	100	100	600
30"	100	120	60
36"	51	60	50
42"	30	30	30
Concrete Sewer Pipe			
6"	——	250	150
8"	——	550	250
10"	——	60	90
12"	——	400	400
15"	——	30	30
18"	——	60	30

OFFICIAL PROPOSALS

Contract 1134
Creosoted Timber Requirements
1951-52
Statewide

	Creo. Timber	Creo. Piling	Guard Rail Posts
New Castle County	——	——	50
Kent County 19 M. Ft. BM	820		20
Sussex County 26 M. Ft. BM	1500		100

Contract 1135
Maintenance Patching Materials
1951-52
Statewide
2,000 Tons f. o. b. Highway Yard, New Castle County
700 Tons f. o. b. Highway Yard, Kent County
2,000 Tons f. o. b. Highway Yard, Sussex County

Contract 1136
Maintenance Patching Materials
1951-52
New Castle County
800 Tons Furnished and Applied

Contract 1137
Maintenance Patching Materials
1951-52
Kent County
3,100 Tons Furnished and Applied

Contract 1138
Maintenance Patching Materials
1951-52
Sussex County
1,000 Tons Furnished and Applied

Contract 1139
Bituminous Concrete—Item 14
1951-52
New Castle County
4,000 Tons Furnished f. o. b. Highway Trucks

Contract 1140
Crack Filler 1951-52
New Castle County
15,000 Gal. Crack Filler, f. o. b. Highway Yard

Attention is called to the Special Provisions in the proposals, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by a surety bond, certified check or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Proposal for the construction of State Highway Contract No. ....."

The right is reserved to reject any or all bids.

The contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

Complete sets of plans and specifications may be obtained after June 6, 1951, upon receipt of two dollars ($2.00) for each Contract, which amount will not be refunded.

Make checks payable to the State Highway Department.

STATE HIGHWAY DEPARTMENT
By: J. Gordon Smith, Chairman
Richard A. Haber, Acting Chief Engineer
Dover, Delaware
May 23, 1951

Bids: June 28, 1951:

New Jersey Turnpike Authority

Sealed proposals will be received by the New Jersey Turnpike Authority for:
CONTRACT NO. 83

The work is to be done under this Contract involves the construction of roadway and area lighting for service areas and interchanges along the Turnpike, and other work incidental thereto, all in connection with the construction of the New Jersey Turnpike.

OFFICIAL PROPOSALS

Contract No. 83 includes four (4) service areas and four (4) interchanges all in Middlesex County.

Principal items of work include:

Trenching and Backfilling	37,000 lin. ft.
Asbestos—Cement Conduit	27,800 lin. ft.
Galvanized Wrought Iron Conduit	10,200 lin. ft.
Underground Series Lighting Conductor	82,000 lin. ft.
Lighting Standards	190 units
Luminaire Installations	190 units
Constant Current Transformer Installations	6 units

Proposals will be received at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey until 10:30 o'clock, Eastern Daylight Saving Time on the morning of June 28, 1951 and thereafter in the Veteran's Room of the War Memorial Building, Memorial Drive at Willow Street, Trenton, New Jersey, until 11:00 A.M. Eastern Daylight Saving Time, on the same date, at which latter time and place said proposals will be publicly opened and read.

The receipt and opening of proposals is subject to proper prequalification of the bidder in accordance with the regulations adopted by the New Jersey Turnpike Authority. Bidders must also submit with their Proposal a revised financial statement and a statement of plant and equipment.

Contract documents may be seen, and may be inspected by prospective bidders during office hours, after June 8, 1951 at the office of the New Jersey Turnpike Authority, 65 Prospect Street, Trenton 8, New Jersey and at the office of the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York, New York.

Contract documents will be furnished for $5.00 for each set, upon application to the Authority. The payment will not be refunded and contract documents are not required to be returned.

Proposals must be made upon the standard proposal forms in the manner designated in the Standard Specifications, for Construction of the New Jersey Turnpike, and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a certified check drawn to the order of the New Jersey Turnpike Authority and a proposal bond, each for not less than five (5) per cent of the amount of the proposal, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the hour named. Copies of the proposal form to be used for submitting proposals, of the form for the proposal bond, of the form to be used for the financial statement and for the plan and equipment statement to be submitted with the proposals and of the special addressed envelope are furnished in detached form with the contract documents.

The Contract will be awarded or the proposals rejected within fifteen (15) days from the date of opening proposals. The right is reserved to reject any or all proposals.

THE NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

June 6, 1951.

Bids: June 28, 1951:

Paving Parking Area

THE PORT OF NEW YORK AUTHORITY FURNISH ALL LABOR & MATERIAL FOR PAVING PARKING AREA AT SHELLEY'S RESTAURANT AT TETERBORO AIRPORT, TETERBORO, N. J.
CONTRACT O & M 132

Sealed proposals for Furnishing all Labor and Material for Paving Parking Area at Shelley's Restaurant at Teterboro Airport, Teterboro, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111-8th Ave., New York 11, until 11 A.M. Thursday, June 28, 1951, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, June 14, 1951.

OFFICIAL PROPOSALS

(Continued from page 96)

Bids: June 20, 1951

Construction of Footings and Foundation Walls

HOUSING AUTHORITY OF BALTIMORE CITY

The Housing Authority of Baltimore City will receive sealed bids for clearing and preparing of site, rough grading, excavation for buildings, and the construction of footings and foundation walls for all of the dwelling units of the Westport Homes (Extension) Project, located at Maisel and Nevada Streets, Baltimore, Maryland, (designated as Part A of Housing Project MD 2-13), until 2:30 P.M., (Eastern Daylight Saving Time), on the 20th day of June, 1951, at 709 East Eager Street, Baltimore 2, Maryland, at which time and place all bids will be publicly opened and read aloud.

Proposed forms of contract documents, including plans and specifications, are on file at the office of the Housing Authority of Baltimore City at 709 East Eager Street, Baltimore 2, Maryland, and at the office of F. L. W. Moehle and Fenton & Lichtig, Architects, at 2514 North Charles Street, Baltimore 18, Maryland, and at the office of the Building Congress and Exchange of Baltimore at 2301 North Charles Street, Baltimore 18, Maryland.

Contractors may obtain copies of the documents by depositing $50.00 with the Housing Authority of Baltimore City for each set of documents so obtained. Such deposit will be refunded to each Contractor who returns the plans, specifications and other documents in good condition within 10 days after bid opening. The deposit must be in the form of a check, made payable to the Housing Authority of Baltimore City. Cash is not acceptable.

A Cashiers' check or bank draft, payable to the Housing Authority of Baltimore City, negotiable U. S. Government bonds, or a bid bond binding the bidder and acceptable sureties to the Housing Authority of Baltimore City in an amount equal to five percent (5%) of the bid shall be submitted with each bid.

The successful bidder will be required to furnish and pay for satisfactory performance, payment, and highways bonds.

Attention is called to the fact that not less than the minimum salaries and wages as set forth in the Specifications must be paid on this project.

The Housing Authority of Baltimore City reserves the right to reject any or all bids or to waive any informalities in the bidding. No bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of bids without the consent of the Housing Authority of Baltimore City.

HOUSING AUTHORITY OF BALTIMORE CITY
OLIVER C. WINSTON
Executive Director

Bids: July 3, 1951

Bridge

NOTICE TO CONTRACTORS

Sealed bids for furnishing labor, equipment, tools, materials, not furnished by Owner, and performing all work of raising 3-300 ft. steel spans, 1-300 ft. swing span, and 1-721 ft. cantilever span, of the New Orleans, Texas & Mexico Railway Bridge over the Atchafalaya River at Krotz Springs, St. Landry Parish, Louisiana, will be received by C. S. Kirkpatrick, Chief Engineer of the New Orleans, Texas & Mexico Railway, 204 Union Station, Houston, Texas, until 10 A.M., Central Standard Time, July 3, 1951, and then publicly opened. The Owner will furnish reinforcing and structural steel at Krotz Springs to raise bridge 6 feet on steel grillages encased in concrete. Further information upon application to C. S. Kirkpatrick, Chief Engineer, 204 Union Station, Houston, Texas.
June 2, 3, 4, 5—1951 July 1, 2—1951

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota.—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Channel Clearing, Snagging, and Excavation: Lac Qui Parle Flood Control Project, Minnesota River, Minnesota, will be received in this office until 2:00 P.M., C.S.T., June 19, 1951, and then publicly opened. Further information upon application.

OFFICIAL PROPOSALS

Bids: June 20, 1951

Cleaning and Lining Water Mains

CITY OF NORFOLK, VIRGINIA

Proposals will be received by the Department of Public Works, Room 203, Norfolk, Virginia, until 12 noon, E.S.T. June 20, 1951, and then publicly opened and read, for furnishing all labor and materials and performing the work of:

Cleaning and lining 16-inch, 20-inch, 24-inch and 30-inch cast iron water mains at various locations.

Bids shall be enclosed in two envelopes. The inner envelope shall be endorsed "Bid for Cleaning and Lining Water Mains", and shall also be marked with the name of the company and the Virginia Contractor's license number. The outer envelope shall be addressed to the Department of Public Works.

The work embraces the furnishing of all labor and materials necessary for cleaning and lining of approximately 4,000 linear feet of 16", 7,000 linear feet of 20", 37,350 linear feet of 24" and 23,650 linear feet of 30" cast iron water mains except as hereinafter provided.

Each bid shall be accompanied by a certified check in the amount of Five (5%) per cent of the bid total, made payable to Alex H. Bell, Treasurer of the City of Norfolk, Virginia.

Drawings and Specifications may be obtained from the Office of the Department of Public Works of the City of Norfolk, Virginia upon deposit of Twenty-five Dollars ($25.00) for each set of drawings and specifications, which deposit will be returned upon return of the plans and specifications, in good condition.

The Department of Public Works reserves the right to reject any or all bids and to accept the bid which in its opinion best serves the interests of the City.

H. H. GEORGE, 3d
Director of Public Works

Bids: June 25, 1951

Construction of the Administration Building Annex

THE DELAWARE RIVER JOINT COMMISSION, CAMDEN, NEW JERSEY

Sealed bids will be received for the construction of the Administration Building Annex at the office of the Secretary of The Delaware River Joint Commission, Administration Building, Bridge Plaza, Camden, New Jersey until 1:30 P.M. (Eastern Daylight Saving Time) Monday, June 25, 1951 and then and there will be publicly opened and read.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for these contracts, which may be obtained upon a deposit of ten dollars ($10.00) each and which will be remitted upon receipt of bid or the return in good condition of the copies so taken within thirty (30) days after the opening of bids.

Each proposal must be accompanied by a certified or cashiers' check payable to The Delaware River Joint Commission in the amount specified below:

Contract No. 11-A General Construction Work	$20,000
Contract No. 11-B Structural Steel and Iron Work	3,000
Contract No. 11-C Plumbing	3,000
Contract No. 11-D Heating	5,000
Contract No. 11-E Electrical Work	3,000

Each check must be drawn upon a National or State Bank or Trust Company having an office either in Philadelphia, Pennsylvania or Camden, New Jersey and must not be enclosed with the sealed bid. The Surety's consent must be shown. The bidder to whom one or more of these contracts is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of one hundred percent (100%) for each contract.

The Commission will afford prospective bidders an opportunity to inspect the site of the work.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids; and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

THE DELAWARE RIVER JOINT COMMISSION
Joseph K. Costello, Secretary.

SEARCHLIGHT SECTION

Classified Advertising

EMPLOYMENT OPPORTUNITIES — BUSINESS EQUIPMENT — USED OR RESALE

UNDISPLAYED RATE

$1.50 a line, minimum 3 lines.

To figure advance payment count 5 average words as a line.

Employment Wanted and Individual Selling Opportunity undisplayed advertising rate is one-half of above rate, payable in advance.

Box Numbers—Care of publication count as one line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Equipment Wanted or For Sale Advertisements acceptable only in Displayed Style.

DISPLAYED RATE

Individual Spaces with border rules for prominent display of advertisements.

The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

An advertising inch is measured ⅞" vertically on one column, 3 columns — 30 inches to a page.

WANTED

STRUCTURAL DESIGNER

By a large American oil company in South America.

Should have college degree and approximately 5 years' experience in drafting and design of structures of steel, timber, and reinforced concrete.

Write giving age, education, marital status, and complete details of past experience. Your reply will be held in strict confidence.

BOX 308-X
RADIO CITY STATION
NEW YORK 19, NEW YORK

WANTED

TRACK FOREMEN (8)

Qualified for Track Laying, Lining, Surfacing, Installation of Turnouts, State Salary expected, Experience and date available with application.

P-9967, Engineering News Record
330 W. 42 St., New York 18, N. Y.

WANTED

BRIDGE DESIGNERS
DESIGNER DRAFTSMEN
RESIDENT HIGHWAY ENGINEERS

Experienced men wanted. State qualifications, age, salary and date available in first letter. Location, Western Pennsylvania.

P-9982, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

ADDITIONAL EMPLOYMENT ADVERTISING ON FOLLOWING PAGES

ENGINEERS

DESIGNERS & DRAFTSMEN

Electrical, Mechanical

Structural & Hydraulic

Reinforced Concrete

Designers & Detailers

FOR WORK ON

Industrial Plants
Paper & Textile Mills
Water Supply & Waste Disposal
Steam & Hyroelectric Power Plants
Electrical Transmission & Distribution

CHAS. T. MAIN, Inc.

80 Federal Street
Boston 10, Mass.

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Open Hearth Plants. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-9735, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

SALES ENGINEER TRAINEE

Civil Engineering background. General Construction experience desired. Age 26 to 35. Opportunity for advancement with expanding corporation operating on nationwide basis. Please give history of education and experience, also availability in first letter. Reply to:

R. P. WILKINSON,
ECONOMY FORMS CORPORATION
Box 128 H. P. Station, Des Moines 13, Iowa

CONSTRUCTION ENGINEER

Top estimator with experience in supervision, estimating and surveying of airports, highways, sewers, and bridges. Please write full particulars and qualifications in first letter. All replies strictly confidential.

P-9938, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

DESIGNERS, DRAFTSMEN, ELECTRICAL - MECHANICAL - STRUCTURAL. JOB LOCATED IN MIDDLE WEST. EXCELLENT WORKING CONDITIONS. GOOD SALARY. OLD ESTABLISHED COMPANY.

P-9872, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SUPERINTENDENTS

Experienced in concrete paving, grading, drainage and heavy construction. Permanent position with well-established firm on Long Island, N. Y. Salary open. Reply giving age, resume of experience and salary requirements to

P. O. Box 276, Hicksville, N. Y. or
call Hicksville 3-0022

Wanted
CONTRACTOR'S ESTIMATOR & MANAGER

Experienced in large & small sewers, disposal plants, piling, bridges, and road work. Opportunity to share profit for the right man.

UNITED FOUNDATION CORPORATION
680 Lexington Road, Union, N. J.
Phone Unionville 2-4257

BRIDGE SUP'T WANTED

Able to take charge of section of large contract, concrete & steel sheet piling, etc., in Trenton, N. J. Must have had successful experience in similar work. State age, references, experience, salary, when available.

P-9991, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

DESIGNERS, ENGINEERING Draftsmen for established consulting firm designing sewers, pumping stations, sewage treatment plants, water supply systems, etc. Layout and detail drafting on structures, piping, reinforced concrete. Structural and hydraulic computations, specifications. Give full particulars. Location, New York State. Our employees know of this advertisement. P-9755, Engineering News-Record.

WANTED: SUPERINTENDENT for Rock Quarry. Permanent position. Salary open. L. G. Everist, Inc., Sioux Falls, South Dakota.

CIVIL ENGINEERING Technicians: Laboratory and field men, experienced in soils, concrete and asphalt. Defense projects in East, Midwest, South. Forward complete details to Toledo Testing Laboratory, Toledo, Ohio.

LABORATORY AND Field Supervisor: Experienced in soils, concrete and asphalt, must be registered P.E. Furnish complete details to Toledo Testing Laboratory, Toledo, Ohio.

DRILLERS: EXPERIENCED in soil borings and rock drilling. Work located in Ohio and Michigan. Permanent work for qualified drillers. State age, experience and salary. Toledo Testing Laboratory.

SALES ENGINEERS: District Sales Manager for large manufacturing concern in construction materials. Must have degree in Civil Engineering. Have experience in contacting engineers and contractors and be a resident of the South. Prefer native of Georgia as position is located in Atlanta. This is an excellent proposition and only those qualified will be interviewed. P-9877, Engineering News-Record.

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland 15.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation and bonus plan, group insurance, good working conditions. Only top quality men. Send complete written information. Samborn, Steketee and Associates, 1214 Cherry Street, Toledo 2, Ohio.

ESTIMATOR—EXPERIENCED in pricing and purchasing for heavy construction, grading, paving and drainage contracts. Location Nassau County, N. Y. Salary open. Submit resume of experience, age and salary desired. P. O. Box 270, Hicksville, N. Y. or call Hicksville 3-0022.

WANTED ESTIMATOR qualified and experienced in quantity estimating for general contractor. First class man only. Write P. O. Box 472, Hampton, Virginia.

DRAFTSMEN—STRUCTURAL Steel Detailers experienced only. Alliance Engineering Co., 82 W. Washington St., Chgo., CE-6-2819.

STRUCTURAL ENGINEERS experienced in designing, checking and detailing Bridges, Buildings and Special Structures. Send complete experience record. Interview by appointment only. Ammann & Whitney, Consulting Engineers, 76 Ninth Avenue, New York 11, N. Y.

NEW CONCRETE Products Plant to be erected near New York City wants overall superintendent experienced in McCracken and Quinn pipe, cast pipe, and concrete planks, etc. Replies held in strictest confidence. Please state experience, education, age and salary desired. Position available immediately in connection with construction of plant. Address P-1009, Engineering News-Record.

DETAILER AND Checker — experienced in making and checking shop details for steel fabrication plant. All types of steel construction. State experience, references, and rate expected. Savannah Machine and Foundry Company, P. O Box 590, Savannah, Ga.

CONSTRUCTION SUPERINTENDENT for General Contractor on medium sized industrial and public works project in Northeastern Ohio. In reply please state qualifications, experience, and terms desired. A good opportunity for the right man. P-1008, Engineering News-Record.

DRAFTSMAN — STRUCTURAL Steel, thoroughly experienced, Norfolk, Va. Give full details, salary desired. P-9969, Engineering News-Record.

(Continued on page 100)

CONSTRUCTION SUPERINTENDENT

Experienced in construction of Blast Furnaces. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-9734, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

WANTED
Experienced General Foremen

. . . . for high type sub-base and macadam penetration pavement on New Jersey Turnpike. Must be producer. Wages comparable to ability. Contact:

S. J. GROVES & SONS CO.
Swedsboro, New Jersey
for personal interview.

Also

. . . other **Construction Foremen** with Highway experience needed.

ENGINEERS AND DRAFTSMEN

Experienced in architectural, electrical controls, lighting and power, structural, ventilation, heating, piping or material handling work for Consulting Engineer's office.

J. FRUCHTBAUM
633 Jackson Bldg.
Buffalo, New York

Materials Engineer and Soils Engineer

For construction work in eastern section of the United States. Duration of work 6 to 8 months. Requirements: Materials Engineer—Field testing and control of materials of construction and concrete mix design. Soils Engineer—Soil surveys, identification testing (field and laboratory) compaction control and stabilization. In reply give brief resume of experience.

P-9537, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

DAM DESIGN AND CONSTRUCTION ENGINEERS

3 to 5 yrs. responsible hydraulic experience including 2 in design or construction on major phases of dams plus college degree in civil engr. Civil service positions starting $5232 and $6666. *Exam in California only.* Official application must be filed by July 21.

Write now to Dept. E.N.R. Recruitment Section
State Personnel Board
1015 L Street, Sacramento 14, California

DESIGNERS

We pay among the highest rates in the industry
Our employees share annually in company profits

Must be willing to relocate in Cleveland

Permanent employment

Our continuous expansion and growth offers many fine future opportunities.

We need Designers experienced in Blast Furnace, Steel Mill or Oil Refinery Design.

Men with specific experience, training and background in the following classifications:

STRUCTURAL DESIGNERS
CONCRETE DESIGNERS
ELECTRICAL DESIGNERS
ENGINEERING DESIGNERS
CHECKERS

Our working conditions are the best: our offices are air-conditioned and well-lighted.

We want men who have a genuine desire to develop and advance.

Write to

ARTHUR G. McKEE & COMPANY

2300 Chester Avenue **Cleveland 1, Ohio**

ENGINEERS

ELECTRICAL - MECHANICAL - STRUCTURAL

Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical	Power, lighting layouts and electrical controls.
Mechanical	Plant layout, process piping, conveyors, heating and ventilation, boiler houses, process equipment layout, refrigeration, plumbing, tanks and vessels, packaging equipment, special machinery and equipment.
Structural	Structural steel and reinforced concrete.

Please submit complete resume stating experience, education, salary required and availability date.

THE H. K. FERGUSON COMPANY
Engineers and Builders

The Ferguson Bldg. 1783 E. 11th St. **19 Rector Street**
Cleveland 14, Ohio **New York 6, N. Y.**

WANTED
ENGINEERS

. . . *to train as* . . .

Industrial Consultants in Fire Protection Engineering

full pay to start—complete training field engineering with top U. S. and Canadian industry—usual pension and other benefits. Permanent.

Write complete qualifications to

P-9609, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

COST ENGINEER

Experienced—must be a graduate civil engineer—preferably one familiar with foreign construction assignments.

Project located in North-East Canada . . . work lasting 2 years . . . 1 yr contract . . . transportation paid.

HIGH SALARY

Forward resume dating back to 1940

Apply Immediately!

DRAKE MERRITT
50 Broadway **N. Y. C.**

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven.

POSITIONS WANTED

CONSTRUCTION EXECUTIVE, 50. Capable of managing an entire business. Thoroughly experienced with buildings, machinery installation, process piping and heavy construction projects. Actual superintendent and project manager background on large jobs. PW-9580, Engineering News-Record.

DIVER-FRANK HEFLING, formerly Chi, S. F. US or foreign work. Passport. Capable deep water. 17 yrs const, salvage, surveys, special jobs outfitted. Record underwater torch. Modern phones, safety power compressor, single unit lifeline. Experienced designer air lift dredging, dewatering. Miami, Fla. 268 S.W. 8th St. Phone 3-8089.

BUSINESS MANAGER. Will take complete charge of Contractor's office. Can handle new business, estimating, purchasing, supervision of field work. 25 years experience. Any location. PW-9785, Engineering News-Record.

EQUIPMENT SUPT., Mechanical Operating Engineer, over 25 years experience with erection, repair, maintenance heavy industrial, power plants, pumping stations, marine equipment. P. Cornwell, *824, Colonial Rd., Brooklyn 26, N. Y., TErrance 6-6236.

CONSTRUCTION SUPERINTENDENT. Project Manager, Project Engineer, or Assistant to these. Over 17 years experience in Industrial and Government work. Excellent references. PW-9866, Engineering News-Record.

GENERAL SUPERINTENDENT: Experience includes, dirt moving, industrial buildings, bridges, concrete paving, sewers, tunnels, dams, capable of taking complete charge of large projects. Can be available about June 15. PW-9933, Engineering News-Record.

DIVER—C. F. Logan. Construction and salvage; subaqueous reports; qualified to make underwater surveys for engineers. Capable of organizing equipment and personnel for special underwater jobs. 118 E. Bay St., Jacksonville, Florida. Phone 6-3473.

CIVIL ENGINEER—3 years field and office engineering with contractor. Age 28, married. Desire permanent employment with engineering or construction firm. PW-9977, Engineering News-Record.

CIVIL ENGINEER, P.E. license, Age 37, 15 years experience in planning, designing, administration, purchasing, estimating and construction. Desires association with Architect or Consulting Engineer, or responsible position with General Contractor. Interested in well paying opportunity with action. PW-9972, Engineering News-Record.

SANITARY ENGINEER (Civil Graduate, August, 1951) desires permanent work at sewage treatment plant operation or pollution control. Non-reserve veteran. PW-9974, Engineering News-Record.

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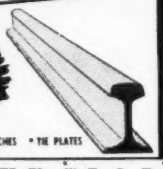

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Circulating spray bar of extremely light weight

The Lite-Wate full circulating spray bar can be easily lifted by one man. Of the bar-end-folding type, it has a 24-ft width. Mounted on a Littleford distributor, the Lite-Wate sprays by pressure and circulates materials by vacuum, assuring clean, even starts, instant shut-off without drip, and suck-back of any material left in the bar after spraying. Lengths of bar may be added quickly by loosening only two bolts. When spraying, all nozzles open instantly and simultaneously. Each nozzle can be turned off individually to provide any desired width of spray.—LITTLEFORD BROS., INC., 453 E. PEARL ST., CINCINNATI 2, OHIO.

Midget tractor-loader

Model M-6 High-Lift crawler tractor has a 2-speed transmission, fully shielded bogey carriage, and spring-loaded front idler wheels. It pivots within its own length. Available for use with the M-6 are rubber treads, hammer knife mower, rotary broom, tote wagon, and rotary tiller.—MEAD SPECIALTIES CO., DEPT. HL-145, 4114 N. KNOX AVE., CHICAGO 41, ILL.

Valve actuators

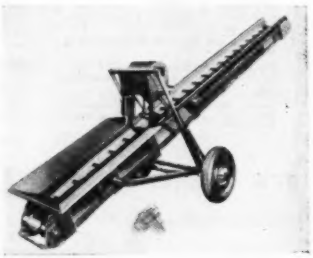
These actuators are designed for operation of gate valves, plug valves, dampers, diaphragm valves, butterfly valves, and sluice gates. They are Ledeen cylinders equipped with brackets, valves, controls, and couplings, and can be adapted to any make, size, or type valve. They can be arranged for on-and-off service or for positioning service.—LEDEEN MFG. CO., 1602 S. SAN PEDRO ST., LOS ANGELES 15, CALIF.

Radioactivity detection lab

Civilian-defense Atomobile is fully equipped to determine the presence of radioactivity; to identify the type of radiation; and measure its danger. It can also be used to analyze water supply contaminated with radioactive material. This unit is completely enclosed in a special truck body, and carries its own electric generator. It contains a radioactivity air-monitoring instrument similar to those used by the armed services; a radioactivity water-monitoring instrument similar to those used in the discharge from atomic piles; 12 portable radioactivity survey meters; 12 sets of protective clothing and gas masks, 12 pairs of lead-lined gloves; two-way radio; fire extinguishers; and radio-chemical equipment for making assays of radioactivity.—RADIATION COUNTER LABORATORIES, INC., 1844 WEST 21ST ST., CHICAGO 8, ILL.

Dry-chemical feeder

Chemizer features continuous stream feeding at low or high rates; positive non-flood operation; and low cost and ease of maintenance. The Model 50-8 has an 8-in. belt and a 1-ft weigh-span. It will continuously feed and weigh from 5 to 5,000 lb of filter alum per hr. (Other chemicals at relative rates, depending on bulk density.) An over or under-feed alarm is standard equipment. The five-figure register reads in pounds fed.—OMEGA MACHINE CO., 390 HARRIS AVE., PROVIDENCE 1, R. I.



Lightweight conveyor

Lightweight troughed-belt conveyor (Model 666) handles 75 yd of sand or gravel per hr. Standard equipment consists of a twin hydraulic boom hoist, underslung axle, slide trough, and a 14-in. 4-ply belt. Lengths from 14 to 25 ft are available as standard.—THE FAIRFIELD ENGINEERING CO., PORTABLE DIV., MARION, OHIO.

Electro alloy steel

Features claimed for SR Rustfree steel alloys include: High yield strength-tensile ratio of 75,100/95,300 psi in the hot-rolled fully annealed condition; fully austenitic non-magnetic structure after cold working (cold finished 0.004-in.-dia wire of 300,000 psi tensile strength is dead austenitic, non-magnetic); moderate hardness of 82 RB in the annealed condition; high

(*Continued on page 110*)

Here's a Wire Rope That LASTS

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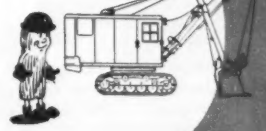
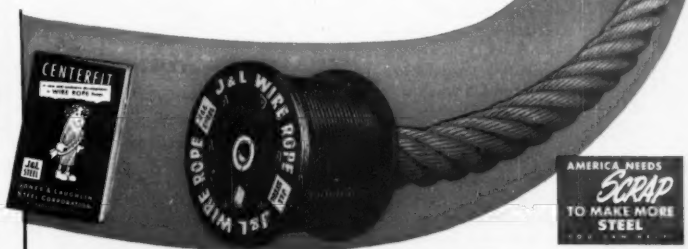
If you're responsible for the wire rope on clamshells, shovels or any other earthmoving equipment that operates on small diameter sheaves and drums, J&L CenterFit Wire Rope can help you save money.

CenterFit, produced exclusively by Jones & Laughlin Steel Corporation, has a unique design engineered to give you more steel and fewer voids than conventional wire rope. All strands run in the same direction with outside strands fitting snugly into the valleys between inside strands. The result—greater strength . . . easier handling . . . which means longer service life.

In addition J&L CenterFit is lubricated with BRONZ-LUBE, the exclusive J&L lubricant with high film strength that prevents squeezing out between the strands. BRONZ-LUBE contains fine flakes of soft bearing metal that provide a smooth wear-resistant surface for every wire—forms a close adherent coating that doesn't drip off unless subjected to extremely high temperatures.

Users' records prove that J&L CenterFit lubricated with BRONZ-LUBE reduces operating costs, diminishes downtime and increases profits when used in the applications for which it was designed.





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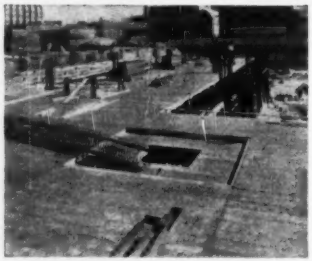
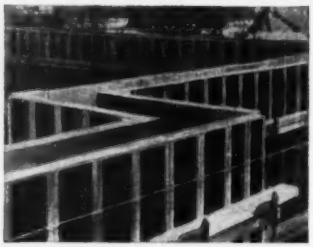


Atlas Speed Forms as used on slabs and walls



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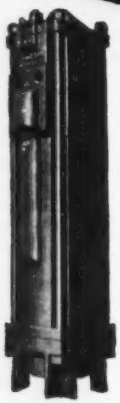

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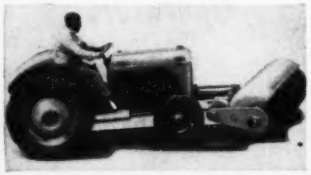
ductility (an elongation of 49% and a reduction in area of 64.5% in the fully annealed condition; high tensile strength at elevated temperatures; and improved corrosion resistance.—UNIWORLD RESEARCH CORP. OF AMERICA, 1302 ONTARIO ST., CLEVELAND 13, OHIO.

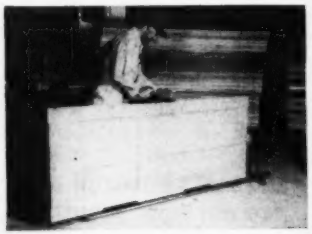


Tractor-mounted sweeper

Broom-sweeper attachment can be attached or removed within 30 min. All shafts are heavy duty and turn on ball bearings. Finger-tip power hydraulic control raises the broom 8 in. Broom tilts to adjust to surface. Broom is driven by rear power take-off at fixed ratio to engine speed. It sweeps a 5-ft swath at a 30-deg angle. Fiber or steel brushes are available.—MEILI-BLUMBERG CORP., NEW HOLSTEIN, WIS.

Refueling pump

Electrically powered Fill-Rite Model PM-622 pump features simplicity of construction. Powered by a ¼-hp motor, it delivers up to 12 gpm. Nozzle is a standard refueling type. Theft-protection feature is an interlocking nozzle and switch mechanism. —OSSIAN ENGINEERING CO., OSSIAN, IND.



Portable door jack

Lightweight door jack features folding construction, runner guides along the spine, rubber gripper feet, rubber bumper at nose, adjustable clamp-grip on the upright member, and non-mar protection for both work and work area. The Adjusta-Fold handles all standard doors up to 8 ft. Doors may be worked with hinges in place. A

(Continued on page 113)

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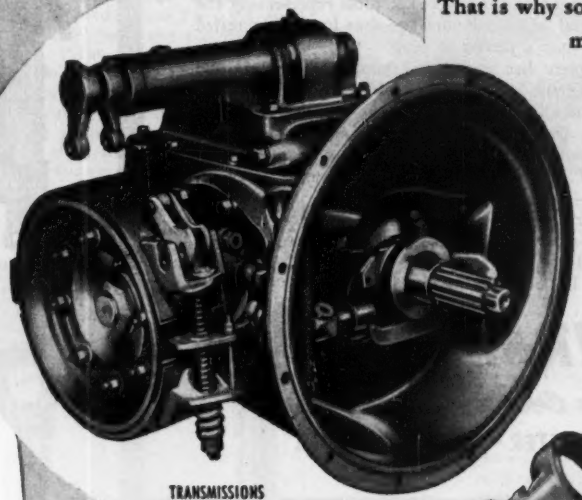

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SHEETING DRIVER—For driving wood or light steel sheeting.

WAGON DRILL—2 sizes, WDR-45 with 2½" Drifter and WDR-126 with the 4" Drifter.

New products . . .

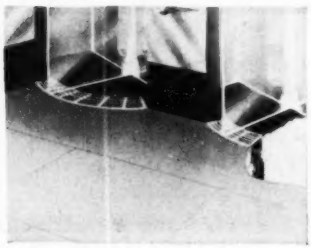
center disconnect pin permits handling window sash, shutters, and small cupboard doors. Fully extended, the jack measures 7½ ft. Upright member is 18 in. Weight is 11 lb.—E-Z Mark Tools, 3707 S. Robertson Blvd., Los Angeles, Calif.

Expansion-type bellows

Bellows of convoluted metal diaphragms absorbs high-frequency vibration and lineal expansion. They are available in various lengths with internal diameters of 1 to 5 in. Height of convolutions varies according to flexibility required. Wall thickness is determined by pressure requirements. —Titeflex, Inc., 500 Frelinghuysen Ave., Newark, N. J.

Plastic finish for wood

Phenolic-plastic finish for wood surfaces features wear and corrosion resistance. Platon contains no oil, and is said to retain a high gloss without waxing or scrubbing. It can be applied cold by brush, spray, or dip. Platon is available in pint, quart, and gallon sizes in gloss, semi-gloss, and flat finish.—Minnesota Platon Corp., Pipestone, Minn.



Revolving-door drains

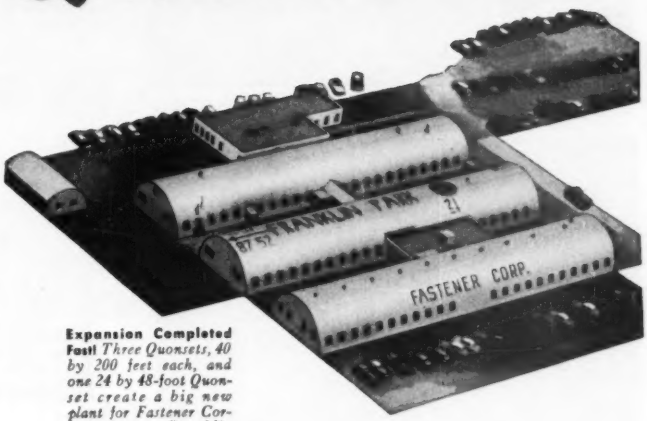
Non-skid drains are designed to minimize the problem of slush and dirty water traced into buildings. It sets flush with the floor surface at both the exterior and interior openings of the revolving door enclosure, and extends the full arc of the enclosure openings. Water is thus wiped into the grating by the squeegee action of the rubber weather stripping at the bottom of the door's wings.—J. A. Zurn Mfg. Co., Erie, Pa.

Lubricated plug valves

Worm and gear-operated Homestead-Reiser valves (Figure 502 GW) feature Self-Seald construction and port area equivalent to 100% of the area of standard pipe. Cast in semi-

(Continued on page 115)

Build Quicker with QUONSETS



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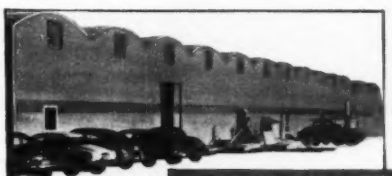

Expands Floor Area by 20,000 Sq. Ft. *Bill Jack Scientific Instrument Co., San Diego, Calif., began with two Quonsets and added 20,000 sq. ft. of floor space in just 50 days.*

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STRAN-STEEL AND QUONSET REG. U. S. PAT. OFF.

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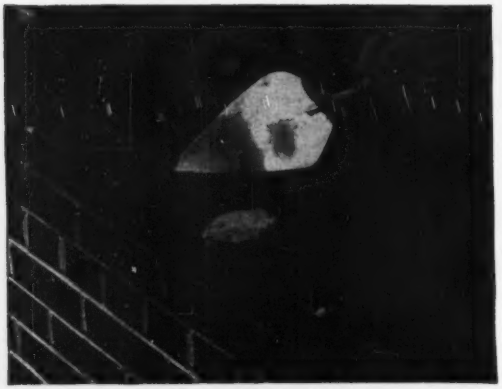
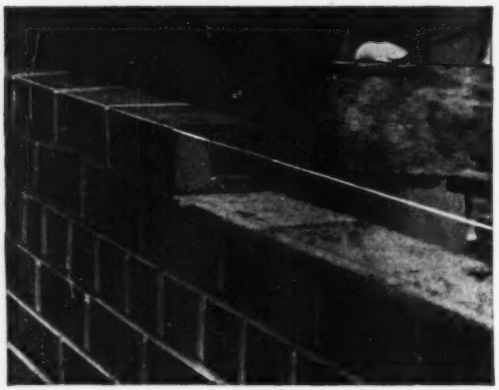
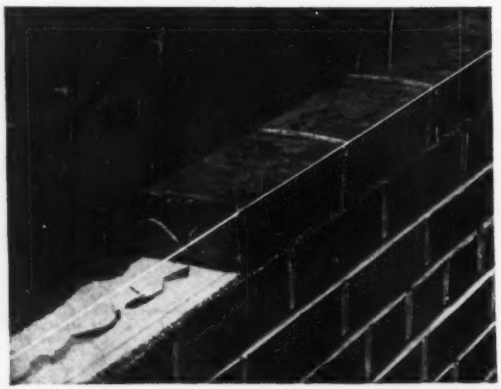


Slushing does not properly fill the voids in the head joints.



When mortar is spotted on only one corner of the brick, slushing seldom fills the voids.



Even when mortar is spotted on both corners of the brick, slushing will not always fill the voids.

"SLUSHING" INVITES LEAKAGE IN BRICKWORK

WE SUGGEST THAT—

Brick should always be so laid that when the brick is shoved into place, the head or cross joint will be *filled solid* with mortar, *without slushing*. If the joints are not completely filled, water may leak through the voids to the inside of the building.

The photos at the left show the voids that often result when slushing is used to "fill" a joint. Even when mortar has first been spotted on both corners of the brick, *slushing cannot be relied upon to fill the voids completely.*

The great plasticity of Brixment enables the bricklayer to throw plenty of mortar onto the brick to be placed — to use plenty of mortar in the bed joint — and still shove the brick easily into position, with excess mortar oozing out all around, and with all voids filled.

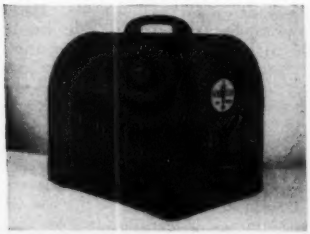
BRIXMENT

Brixment mortar has greater plasticity, higher water-retaining capacity and bonding quality, greater resistance to freezing and thawing, and freedom from efflorescence. Because of this combination of advantages, Brixment is the leading masonry cement on the market.

LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY

New Products . . .

steel, they are made in 8, 10, and 12-in. sizes. They will also be available in a cast-steel full-port type (Figure 562 GW), and in venturi types sizes up to 14 in.—Homestead Valve Mfg. Co., P. O. Box 550, Coraopolis, Pa.



Portable dehumidifier

Model DMS-4 will dehumidify a closed area of tight construction up to about 8,000 cu ft. It connects to a 115-v 60-cycle circuit, and draws 2 amps. Moisture-collection pan can be emptied manually, or connected to hose or pipe for automatic discharge. Dimensions are: 17x13x15¼ in. Weight is 55 lb.—Abbeon Supply Co., 58-10 Forty-first Drive, Woodside, N. Y.

Material-handling tongs

Container tongs are designed for handling small, heavy loads such as blocks or cartons of materials. The G-W tongs have a maximum dimension of 10¼ in. The flat, serrated pressure plates are said not to mar the surface of material carried.—Gifford-Wood Co., Hudson, N. Y.

Hard-surfacing electrode

Ranite B-X hard-surfacing electrode features a 25% faster deposition rate. This increased welding speed is said to decrease heat induction into the parent metal by one-third, minimizing heat strains and preserving original charactertistics of the metal.—Rankin Mfg. Co., 3072 W. Pico Blvd., Los Angeles 6, Calif.

Pick this Lightweight for Heavyweight drilling!
Like all Acker Drills, this lightweight husky was designed and built to operate under the most rugged conditions.
If you are looking for a quality drill that will give you years of trouble-free operation—you want the Acker Teredo.
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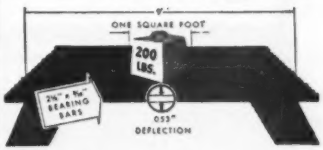

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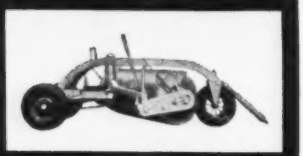

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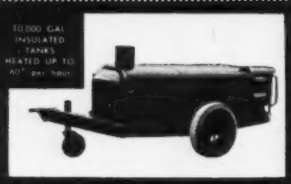

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Special cements; insulations—Engineers' production manual contains complete application data on a line of technical cements and other industrial compounds. Products listed include: Adhesive cements, Hi-Temp cements, thinning liquids, insulating paste, 3-hr cements, low-expansion cement, plastic porcelain, electrical cement, acidproof cement, iron cement, resin cement, acid-tank sealer, acid-resisting paint, joint compound, graphite paste, pipe-joint compound, water-proof glue, and Pour Lay brick. Complete product data are listed for each item telling how to use it, its principal advantages, and features of use. — SAUEREISEN CEMENTS CO., SHARPSBURG STATION, PITTSBURGH 15, PA.

Direct-flow pump—Data sheet 64-a (6 pp) describes the Aldrich 3-in.-stroke direct-flow Triplex pump. It illustrates and presents features of design, construction, dimension drawings, and performance data. Recommended applications are listed.—THE ALDRICH PUMP CO., ALLENTOWN, PA.

Multiple pump controls – Feature claimed for the Autocon Multi-Pump Duotrol is that it provides more water with fewer pump operations from any pressure tank having two or more pumps. Bulletin 1510 illustrates how this result is said to be achieved. Illustrations show how the combined pressure and float units operate in horizontal pump installations or in deep-well installations. — AUTOMATIC CONTROL CO., ST. PAUL 4, MINN.

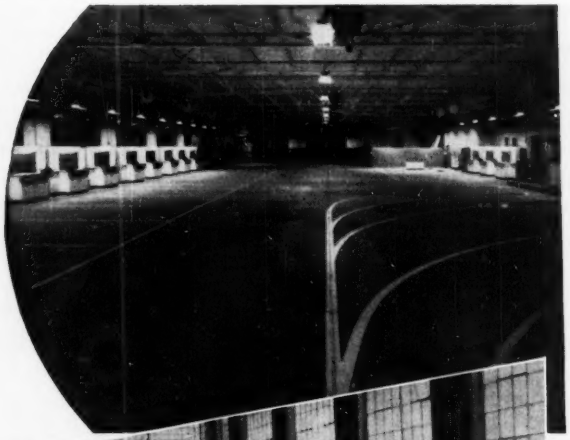
Water treatment, conditioning—Sixteen-page booklet contains technical data on services, products, and methods for water treatment and water conditioning. Included is a study of ten impurities common in water, the damage they cause, and how to combat them.—BROOKS CHEMICALS, INC., 3304 E. 87TH ST., CLEVELAND 27, OHIO.

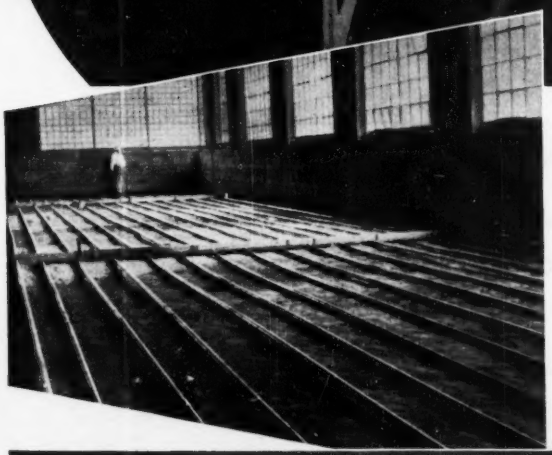
Hydraulic controllers—Bulletin 600-H2 describes the hydraulically powered models RCA and RCB controllers. It discusses applications and installation of these controllers for wash-water service, raw-water service, sewage-plant-flow control, clear-well level shutoff, master and level control, and special problems. In addition to describing the units, the bulletin gives

(*Continued on page 118*)

Here's a real "mechanic's garage"

radiant heating with National Steel Pipe assures warm floors . . . maximum comfort . . . at low cost





● The Kuykendall Chevrolet Company garage, in Lubbock, Texas, is skillfully designed with two important things in mind: High efficiency, for low operating cost; and maximum comfort, for higher worker output.

You can't beat radiant heating for attaining such results. It provides warm floors and uniform, comfortable temperatures throughout—ideal for garage work. Radiant heating eliminates above-floor heating units and makes the entire working area available. There are no obstructions, no hot spots, no cold areas or damp floors to handicap operations. These advantages have led to the increasing use of radiant heating in modern garage construction.

Steel pipe is unequalled for radiant heating installations. It's strong and ductile for easy bending. It's ideal for making welded joints. And steel pipe is so strong that it's hard to damage during installation. Best of all: it's durable in service and economical to use.

When you use National Steel Pipe, you're using the same reliable steel pipe that has been standard for conventional heating for more than sixty years.

If you are planning a future radiant heating installation for a garage, store, church, terminal, factory, warehouse or plant, remember that National—the world's largest selling pipe—has all the qualities that make for a successful application.

NATIONAL TUBE COMPANY, PITTSBURGH, PA.

COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS
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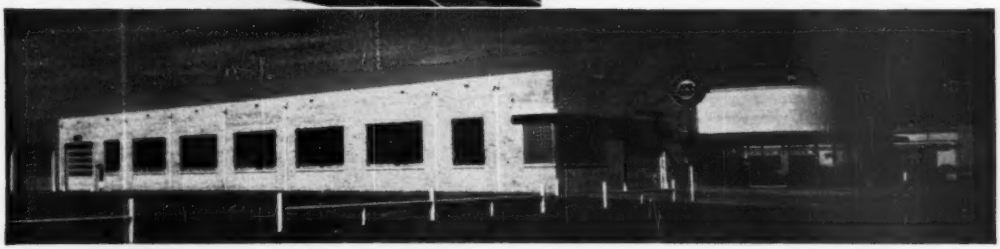

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NATIONAL Steel PIPE

UNITED STATES STEEL

Publications . . .

dimension tables and a typical installation diagram.—BUILDERS-PROVIDENCE, INC., 390 HARRIS AVE., PROVIDENCE 1, R. I.

Casement windows—Hot-dip galvanized apartment casement windows are described in 4-p Bulletin RE-5. Window designs, advantages, construction features, hardware, and screens are discussed. The literature also pictures available types and gives sizes of Fenestra apartment casements, and complete specifications. — DETROIT STEEL PRODUCTS CO., 3141 GRIFFIN ST., DETROIT 11, MICH.

Roof maintenance—Illustrated bulletin describes maintenance of tar and gravel roofs. It discusses labor-saving techniques for removal of gravel by machine, and the mechanical pumping of roofing materials from the ground to the roof.—THE TREMCO MFG. CO., 8701 KINSMAN ROAD, CLEVELAND, OHIO.

Wrought iron pipe—Data on wrought iron pipe is contained in 4-p Bulletin 27a/By. Consolidated tables list size and dimensional data for standard and extra-strong pipe. These contain complete information on threads per inch, mill test pressures, circumference, external areas, length per sq ft of surface area, length per cu ft of volume, gal per lineal foot, and weight of water per lineal ft. Also included is a radiant-heating conversion chart and a formula for use in designing snow-melting systems.—A. M. BYERS CO., ENGINEERING SERVICE DEPARTMENT, CLARK BLVD., PITTSBURGH, PA.

Forest board—"How and Where to Use Forest Board" is the title of this 4-p brochure. It is designed to provide a better understanding of the advantages of hardboard, and the recommended usages and applications of it. Step-by-step application instructions with illustrations are given with information on bending and painting. —FOREST FIBER PRODUCTS CO., 316-14 PACIFIC BLDG., PORTLAND 4, ORE.

Drawing-room lighting – "Lighting Guide to Better Drafting" has been published by the Lamp Department of GE. The guide (Form No. LS-137) makes liberal use of drawings and photographs to illustrate proper lighting for straight-edges and shiny surfaces, proper positioning of drafting boards, and recommended types of lighting systems for better drafting. Also given are helpful hints on the right illumination for tracing tasks, for reference and index systems, and for comfortable seeing of clerical work in drafting operations.—GENERAL ELECTRIC CO., NELA PARK, CLEVELAND 12, OHIO.

Swimming pools—Manual contains 12 pages of information on steel swimming pools. It discusses the advantages of the Koven pools and gives full design, construction, and erection details. Each design feature is illustrated by appropriate drawings or sketches.—KOVEN STEEL SWIMMING POOLS, INC., 155 OGDEN AVE., JERSEY CITY, N. J.

Hole-Saver—Rock Bit Hole-Saver is described in a 4-p pamphlet. This pamphlet features a section drawing showing how this outside fishing sleeve is force threaded in a left-hand direction onto the broken end of lost steel. —ROCK BIT SALES & SERVICE CO., 2514 E. CUMBERLAND ST., PHILADELPHIA 25, PA.

Roller bearings—Catalog 51 illustrates and describes the full line of Shafer products including pillow blocks,

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with the new Sherman Power Digger

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Patented, actuated bucket gives you selective digging action, better loading, greater versatility.

All-hydraulic action—made possible by heavy-duty hydraulic cylinders—assures efficient performance.

SPECIFICATIONS

Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

Standard tractor mounting gives unmatched maneuverability and transportability.

•

Digs ditches, trenches, footings, culverts, basements and other excavations.

Works well behind the tractor at any angle.

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Actuated bucket raises high enough to load standard dump truck.

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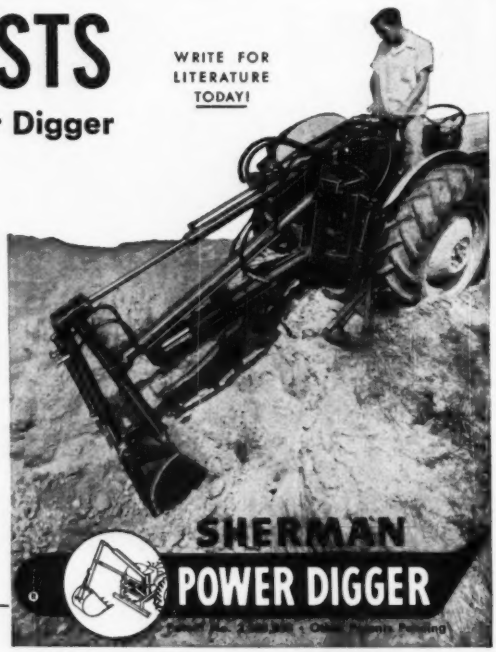

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flange units, flange cartridge units, cartridge unit, duplex units, take-up units, take-up and frame units plus unmounted roller bearings. A description of the ConCaVex design is featured in the catalog. The catalog also contains complete engineering and load-rating data. — SHAFER BEARING CORP., 801 BURLINGTON AVE., DOWNERS GROVE, ILL.

Steel drafting tables—Catalog sheet contains information on advantages claimed for the Stacor steel drafting tables. This 1-p sheet lists the various styles in which the table is available; lists features claimed; and illustrates the features built into these tables.—STACOR EQUIPMENT CORP., 1891 ATLANTIC AVE., BROOKLYN 33, N. Y.

Battery service—Bulletin 194 describes features of AD-X2, a chemical compound designed to decrease sulfation and increase life of storage batteries. The bulletin consists mainly of reprints from "The Battery Man" and briefly describes the development of AD-X2 and the tests it has been subjected to. It contains detailed "how-to" instructions for servicing lead-acid batteries and reprocessing junk batteries.—PIONEERS, INC., 2411 GROVE ST., OAKLAND 12, CALIF.

Underground pipe conduit—Therm-O-Tile conduit is fully described in this 8-pager. Therm-O-Tile is a complete conduit system for the permanent protection, support, and insulation of underground pipe lines, hot or cold. Bulletin 511 illustrates the features and advantages of this system.—H. W. PORTER & CO., INC.-REID HAYDEN, INC., 825 FRELINGHUYSEN AVE., NEWARK 5, N. J.

Hose clamps, fittings—Detailed catalog (12 pp) contains information on hose clamps, tools, and fittings. It describes and illustrates the Punch-Lok method and its applications, listing standard clamps, locking tools, and special fittings. Recommended applications are listed in detail.—PUNCH-LOK CO., 321 N. JUSTINE ST., CHICAGO 7, ILL.

Pneumatic rivet passer—Hot rivets delivered pneumatically at high speed to riveters more than 150 ft away is the outstanding operating feature of the improved Penflex pneumatic rivet passer. Speed of operation, economy, and safety of the unit are described in detail in a new folder. Illustrations show ease of operation, and the four main components of the unit.—PENNSYLVANIA FLEXIBLE METALLIC TUBING CO., DEPT. RP-1, 7200 POWERS LANE, PHILADELPHIA 42, PA.

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WORKING TOGETHER FOR PURER WATER—These city and state officials are cooperating on a problem of well water pollution. They are (l. to r.) Philip Abrams, sanitary engineer of Los Angeles Department of Water and Power; Linne C. Larson, executive officer of Regional Water Pollution Control Board No. 4; Walter B. Hollingworth, city engineer for Vernon; and Robert H. King, Vernon sanitary engineer.

Pollution control in California

How decentralization increased receiving water efficiency

A little over a year ago a bold and unique pollution control setup went into operation in California. Then many engineers and public officials accustomed to conventional pollution control systems doubted that the California plan would be effective. Now an evaluation can be made of how the scheme has operated and how well it has worked (ENR April 27, 1950, p. 13).

California's plan divides the state into nine separate regions, each of which is a distinct watershed. Pollution in each region is controlled by a separate regional board. A state board coordinates activities, reviews and approves budgets,—has power to step in when regional boards fail to act. But this has not been done, a tribute to the efficient nine regional boards.

Pollution control regulations are established by each regional board for all cases of waste discharge on a case by case basis to arrive at waste quality standards, the board takes into account the potential of all bodies of water for natural purification—as well as pollution assimilation—then weighs that against present and future uses of the receiving water.

• **For doubting Thomases**—Some questioned at first the practicality of individual standards. Usually pollution control involves setting up absolute and rigid standards for a stream or for different zones of a stream. But California lawmakers thought this would result in uneconomic treatment facilities.

Others feared inclusion of city and industry representatives on state and regional boards. They thought they were possible polluters of water. But in almost all proceedings, there has been an honest give-and-take between these opposite viewpoints. Qualified observers believe that standards established have conformed to the intent of the law and, most important, make the best use of available water.

The operation has been smooth. More than 150 waste discharge requirements have been prescribed during the first year's operation. This has required a thousand informal meetings between officials of the various boards and others.

But no formal hearings have been held and the state board has not had to act in any instance of failure to do so by regional boards.

• **The Coordinators**—Instead of complicating the picture by imposing one more governmental regulatory agency, California procedure was simplified by the new law. Reasoning was that regional boards through their executive officers and staff could coordinate rulings of all local agencies that might be involved, so they were given final authority to set standards.

It works this way: a city or industry discharging waste goes to only one authority for its waste standards.

So regional boards coordinate rulings of the State Department of Public Health, the State Division of Water Resources, the State Division of Fish and Game, and local health authorities.

They must cooperate with municipalities, sanitation districts, industries, farmers and others.

• **How it works**—Workings of the scheme can be understood by an example. Well pollution was discovered during a routine check some months ago in the area of the Los Angeles Department of Water and Power. The wells were for emergency standby domestic supply. That involved L. A. city officials.

The wells are near a densely industrialized area close to the city boundary. Industries in the neighboring municipalities of Vernon and Huntington Park may well be the cause of the pollution. So, these two towns are parties to the investigation as are various industries in the area.

This particular case of well pollution is one of adverse effect on water quality. So far as is known, it does not involve a health hazard. But if it did, state, county and city health departments would immediately also be involved.

Now the job of the regional control board in this case is to find the source of the pollution and establish waste criteria that will prevent it. In so doing, the board gets the cooperation of all the agencies involved—but the final responsibility falls on the regional board.

The Los Angeles problem is still under study. Progress has been made on removing possible sources of the pollution. Final disposition of the problem will be one or more sets of waste discharge standards developed and enforced by the Los Angeles Regional Water Pollution Control Board.

This instance is only one of hundreds now under consideration by regional boards all over the state. In all likelihood there will be many more similar cases come up through the years.

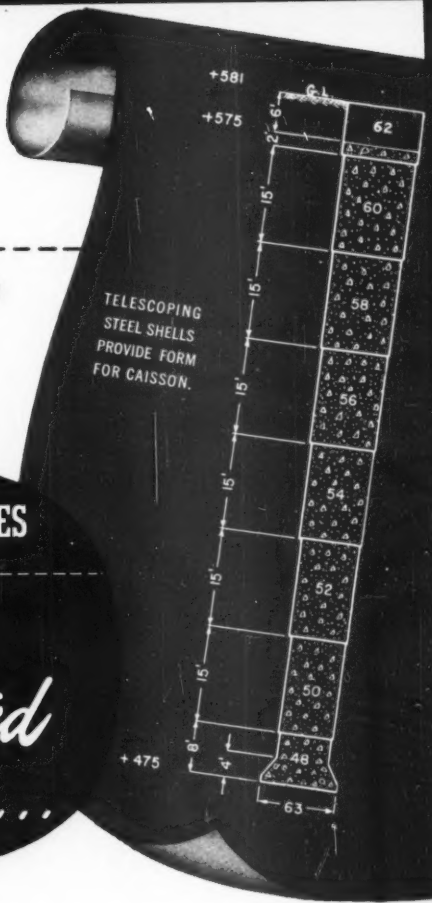
Raymond

MAKES 5 TYPES OF CONCRETE PILES

1. STANDARD . . . 2. STEP-TAPER . . . 3. PIPE STEP-TAPER
4. COMPOSITE . . . 5. GOW CAISSONS

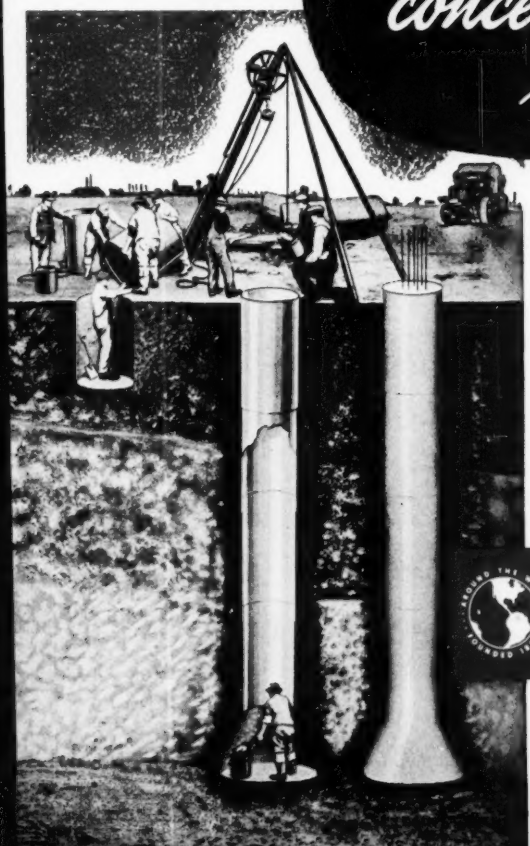
Raymond installs every type of pile: cast-in-place concrete, precast concrete, steel pipe, wood and H-beam. Raymond operations include underpinning, borings and soil investigations, waterfront construction and harbor and river improvements, and cement mortar lining of oil and water pipe lines 4" to 144" in diameter by the Centriline Corporation, a Raymond subsidiary.

At left, excavating starting pit and placing first cylinder. At center, excavating bell at bottom of the steel-lined shaft. At right, the completed caisson.



5. GOW CAISSON PILES

For heavy concentrated loads . . .



Raymond Gow caissons are efficient and economical for supporting heavy concentrated loads under certain soil conditions. The Gow method consists of hand or machine excavation carried on inside of telescoping steel cylinders. Where the caisson rests on hard ground, a bell is usually formed at the bottom to distribute the load over a large area. Where the caisson rests on rock, the bell is usually omitted. After excavation is completed, the steel cylinders are removed as the concrete is poured.

Because heavy equipment is not required and the steel cylinders are re-usable, Gow Caissons are economical in most soils. Your inquiry is cordially invited.

Raymond CONCRETE PILE CO.

140 CEDAR ST., NEW YORK 6, N. Y.

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PENNSYLVANIA
Report No. 3588

FORD TRUCK ECONOMY RUN

"I haul— Over 7 tons of sand for only 4²⁄₁₀¢ a mile!"

—says **LOUIS DE YENNO**
Contractor, Paoli, Pa.

He kept daily cost figures on his 1950 Ford F-8 Dump, equipped with POWER PILOT, during Ford's nation-wide Economy Run and says, "Ford Trucks save me money every mile."

Fords have been De Yenno's favorite trucks for the last eight years. He says, "I've driven other trucks, but feel they don't stand up as well as Fords. During the Economy Run, my Dump truck traveled 10,802 miles, with an average load of 14,983 lbs. Yet the total expense for gas, oil, maintenance, with no repairs, came to only $448.65—that's a running cost of only 4.15 cents a mile!"

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